# AN INSTITUTIONAL ASSESSMENT OF INFLATION TARGETING AS A FRAMEWORK FOR MONETARY POLICY

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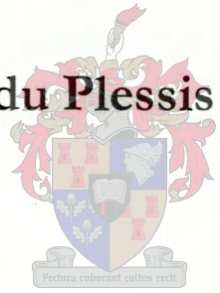


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Declaration

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

# ABSTRACT

A number of themes run through this dissertation, the first of which is the importance of money in facilitating decentralised decision making by lowering transaction costs and by contributing to the definition and maintenance of property rights. A second (and more melancholy) theme is that government control of money has often been poor, and systematically so since the War. This leads to a third theme, the combined force of economic theory and central bank practice of the last quarter of a century or so has led to clearer limits to the discretionary power of government in the management of money. These limits are increasingly expressed as contingent rules containing explicit targets for monetary policy, for example an inflation target.

The objective of this thesis is to evaluate inflation targeting both normatively and positively as a framework for monetary policy. A set of criteria from the New Institutional Economics literature is used to evaluate the extent to which inflation targeting captures the lessons from the three themes mentioned above, in both normative and positive dimensions. The practical importance of the thesis is in the application of this institutional evaluation to the inflation the targeting regime of recent vintage in South Africa, which leads to a number of policy recommendations.

Part I consists of three chapters of which the first two are mainly abstract and concerned with the theory of the New Institutional Economics. The third chapter has a historical character and considers the history of and recent trends in monetary policy. These trends are consistent with adopting an inflation target as a framework for monetary policy.

The second part of the thesis starts with a theoretical consideration of monetary policy rules in chapter 4, and is followed by a discussion of one such rule, inflation targeting, in chapter 5. This discussion starts with the theory of inflation targeting, but proceeds to details of actual inflation targeting central banks, with special reference the South African Reserve Bank (SARB). The history of anti-cyclical monetary in South Africa is also considered empirically to determine whether inflation targeting would represent an important new direction on this issue.

Chapter 6 follows with a literature review of the empirical record of the first decade of inflation targeting internationally. The seventh chapter is the core of the thesis and provides the institutional evaluation of inflation targeting. This evaluation is applied to the present inflation targeting regime in South Africa, and leads to recommended policy reforms. These policy

reforms are mapped on a two-dimensional chart that indicates their priority and the expected cost of the associated institutional reform. Additionally a new econometric methodology is used in chapter 7 to gauge the contribution of monetary policy to the more stable economy of recent years.

In part 3 the focus of the thesis turns to certain political economy considerations that arise from the independence of the central banks (as is typical for inflation targeting central banks). Chapter 8 considers the issue of central bank independence and is followed by an application of constitutional economics to inflation targeting in chapter 9. Whereas the bulk of the dissertation is concerned with the positive evaluation of inflation targeting, chapter 9 attempts a normative evaluation using the Pareto-Wicksell criterion. Both the positive and normative assessments in this thesis support the case for inflation targeting as a framework for monetary policy,

# OPSOMMING

Die doel van hierdie proefskrif is 'n institusionele evaluering van inflasieteikening as raamwerk vir monetêre beleid. Vir hierdie doel is 'n stel kriteria saamgestel uit die literatuur van die Nuwe Institusionele Ekonomie met die oog op 'n positiewe en 'n normatiewe evaluering van inflasieteikening as 'n raamwerk vir monetêre beleid. Die praktiese waarde van die tesis lê in die stel institusionele hervormings wat voorgestel word om die stelsel van inflasieteikening in Suid-Afrika meer doeltreffend en normatief meer gewens te maak.

Etlike temas loop deur die proefskrif, maar veral drie verdien vermelding in die opsomming, naamlik: eerstens, die belangrikheid van die monetêre stelsel om gedesentraliseerde besluitneming te vergemaklik en as bydraende faktor in die vestiging van eiendomsreg. Tweedens, hoewel moderne owerhede tipies 'n monopolie op die plaaslike geldeenheid bestuur, het die monetêre bestuur in die moderne tydgewrig (veral sdert WOII) veel te wense oorgelaat. Hierdie wanbestuur was boonop telkens sistematies. Derdens, beide teoretiese ontwikkelings en die praktyk van sentrale bankwese het die afgelope kwarteeu aanleiding gegee tot 'n terugrol van die regering se rol in monetêre beleid en die toenemende gebruik van sistematiese beleidsreëls as raamwerk vir monetêre beleid.

Die eerste deel van die proefskrif beskou die teorie van die Nuwe Institusionele Ekonomie in hoofstukke 1 en 2. Die derde hoofstuk is histories van aard en beskou die geskiedenis van moderne monetêre beleid en die tendense wat daaruit afgelei kan word.

Afdeling twee fokus meer nougeset op inflasieteikens en begin met die teorie van beleidsreëls in hoofstuk 4. Die vyfde hoofstuk volg met 'n interpretasie van inflasieteikens as een van die sogenaamde terugvoerreëls vir monetêre beleid wat sedert die laat sewentigerjare ontwikkel is en sedertdien gewild geword het. 'n Toenemende aantal ontwikkelde- en ontwikkelende-lande het gedurende die afgelope dekade (en langer) inflasieteikens as raamwerk vir monetêre beleid aangeneem. Hoofstuk ses evalueer die empiriese rekord van hierdie kort geskiedenis. Die sewende hoofstuk is die kern van die tesis en bevat die institusionele evaluering van die inflasieteikens aan die hand van die kriteria saamgestel in hoofstuk 1, met spesifieke toepassing op Suid-Afrika. 'n Nuwe ekonometriese tegniek word ook in hoofstuk 7 gebruik om die bydrae van monetêre beleid tot die meer stabiele ekonome van onlangse tydgewrig te kwantifiseer.

Die netelige institusionele kwessie van onafhanklik sentrale banke word nie in hoofstuk 7 bespreek nie, maar staan oor tot deel drie van die proefskrif waar die politieke-ekonomie van inflasietekens bespreek word. Hoofstuk 8 handel dan oor onafhanklike sentrale banke, met toepassing op die SARB, terwyl hoofstuk 9 'n toepassing is van die konstiutionele ekonomie op inflasieteikening. Hoofstukke 8 en 9 bied derhalwe verdere positiewe evaluering van die instrument-onafhanklike SARB onder inflasieteikens, asook 'n normatiewe evaluering van inflasieteikens aan die hand van die Pareto-Wicksell kriteria wat uit hoofstuk 2 spruit. Beide die normatiewe en positiewe evaluerings ondersteun die saak ten gunste van inflasieteikens as raamwerk vir monetêre beleid.

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This thesis has been joyful work and at its completion it is right that I acknowledge the numerous colleagues, friends and family who have, in various ways, contributed to its completion.

My parents have supported my academic work actively throughout the many years since I first entered university. I am inexpressibly grateful for this and for their love. This thesis was typed on my sister Annelie's computer, for the use of which I am deeply grateful. My grandparents have not ceased to ask me "when will it be finished?" It is finally done, and I am grateful for their love and for their interest in the project.

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I apologise to those friends I am unable to mention here by name, my gratitude is not as limited as the space for these acknowledgements.

Finally, over the course of the last three years I have presented these ideas at various seminars and conferences. I would like to thank the Department of Economics at Wits University for inviting me to address their staff seminar in May 2001, Deutschebank for inviting me to participate in their seminar on inflation targeting in May 2002, and the Department of Political Science at the University of Stellenbosch for a similar invitation to address students and staff in October 2002. The econometric analysis in chapter 7 was presented at the 8th Annual Conference on Econometric Modelling for Africa during July 2003 and was collaborative work with Professor B.W. Smit.

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# INTRODUCTION

Edward Gibbon (1787) opened his *Decline and Fall of the Roman Empire* with the original emperor's discovery "...that Rome, in her present exalted situation, had much less to hope than to fear from the chance of arms; and that, in the prosecution of remote wars, the undertaking became every day more difficult, the event more doubtful, and the possessions more precarious, and less beneficial." Though this dissertation is immeasurably less colourful than Gibbon's chronicle of "crimes, follies and misfortunes," the message is of a like discovery; that there are limits to what governments can profitably pursue with monetary policy and that inflation targeting may circumscribe the beneficent monetary policy regime as sensibly as the "...Atlantic ocean; the Rhine and Danube on the north; the Euphrates on the East; and towards the south, the sandy deserts of Arabia and Africa" demarcated the Empire. And if we overstep this boundary by "...assigning to monetary policy a larger role than it can achieve" as Milton Friedman (1968: 5) cautioned, we risk "...preventing it from making the contribution it is capable of making."

It is important to explain the purpose of the opening comparison at the outset: In their recent paper on the ever-present social tension between disorder and dictatorship in society (or what will be called the "paradox of power" throughout this dissertation) Djankov, Glaeser, La Porta and Shleifer (2003) introduced the idea of a trade-off between disorder and dictatorship that could be represented by a downward-sloping frontier (called the institutional possibility frontier) which is a locus of different combinations of losses due to disorder and dictatorship respectively. Government's role in enforcing property rights increases as society moves from the top left to the bottom right of the graph, this frontier traces the institutional possibilities for a society, moving from anarchy to despotism.

Any particular institutional setting (called the institutional matrix) for society represents a point on this frontier[1], and an efficient institutional setting is one that minimises the combined loss (to dictatorship and disorder). In other words, the institutional matrix reflects the balance that every society strikes between the costs of disorder and dictatorship. Nevertheless, whatever the balance, it is achieved by limiting government to protect private property (specifically) and a private sphere of influence (more generally) (Acemoglu, 2003). It stands to reason that the same balance has to be found with respect to the power of other significant social units, including corporations as these may similarly cause of costs of dictatorship. This solution of the paradox of

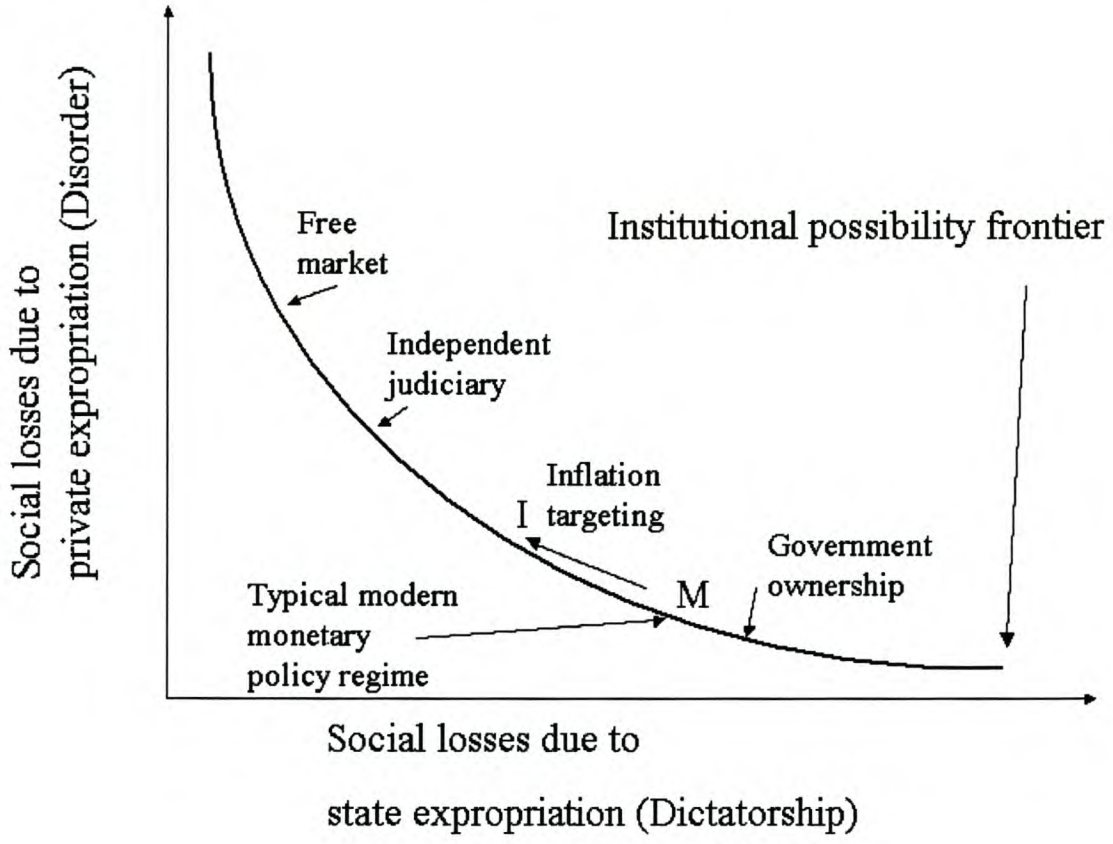
[1] Three of the typical real world settings that function as solutions to the trade-off between disorder and dictatorship suggested by Djankov et al. (2003) are shown on figure A.1.

power by limiting the powerful (even in a democracy) is called the rule of law. The latter is evidently a question of degree: In figure A.1 the rule of law helps to determine the location of society on the institutional possibility frontier; the rule of law does not prejudge the position on the frontier.

Institutional matrices differ across societies not just because they have made different choices with regard to the rule of law, but also due to the effect of what Djankov et al. (2003) called "civic capital" (the extent to which co-operation is easily and spontaneously achieved in each society) influences the shape and location of the institutional possibility frontier. The manner in which people respond to incentives will differ from one country to another and from time period to time period because of the existence of informal institutions. Informal institutions influence institutional change because different people will respond differently to incentives given diverse cultural (religious, philosophical and so on) pressures and incentives.

The shape and location of the frontier is an abstract expression of this "civic capital": when the frontier moves outward for a society the trade-off between the costs of disorder and dictatorship rises for every institutional setting, that is the trade-off becomes increasingly unfavourable. The shape of the curve is important, too: a flatter curve means that the cost of dictatorship rises comparatively more quickly than the rate at which the benefits of order accrue, and conversely a steeper curve suggests that a smaller penalty in terms of the costs of dictatorship is required for a given lowering of the costs of disorder. In a recent application of Esping-Andersen's (for example, Esping-Andersen, 1990; 1996) analysis of economic systems, Terreblanche (1998) identified 4 manifestations (or worlds) of capitalism in the post-communist era: liberal capitalism (in the USA and UK), social democracy (in Scandinavia and the Benelux countries), social market economies (in Germany, France and Italy) and familistic or corporate capitalism (in Japan). The high degree of homogeneity and "unifying ethos" which Terreblanche (1998) identified with Japan would imply an institutional possibility frontier closer to the origin than for a society, say Kosovo, where co-operation is problematic.

*Figure A.1 The institutional possibility frontier and the monetary policy regime*




But this is a dissertation about the monetary policy framework, and it is only rarely that this framework affects civic capital and, hence, the location of the institutional possibility frontier. The exceptional circumstances are mostly negative, for example when the monetary policy framework breaks down during high or hyperinflation, rendering social co-operation very expensive. In the latter case the frontier shifts outward. Normally, though, an institutional assessment of the monetary policy framework would be concerned with the position taken by the monetary policy framework on the frontier, as well as the possibility that the system could be above the frontier (and hence suffer from deadweight inefficiencies).

The institutional setting for the monetary policy regime that has become typical in modern economies is plotted as point M on figure A.1. and this is relevant to all four capitalist worlds identified in Terreblanche (1998). Evidently, the typical setting for monetary policy is one where the government takes a very large role. Indeed, a government monopoly on the national currency has become conventional. In this context, the discovery about monetary policy institutions referred to in the opening paragraph refers to a move somewhat to the left along the institutional possibility frontier, that is a move away from the extreme levels of dictatorship over money that

had prevailed for much of the twentieth century. By no means, however, does it represent an argument for "free banking" (or privatisation of the monetary system). Rather, the discovery concerns limiting the dictatorial powers of a monopolist. By comparison, Augustus's discovery was meant to limit an empire, not to dismantle it.

The intellectual framework of this dissertation on the institutions of the monetary policy framework is similar to that of Djankov et al.'s (2003) trade-off, that is: "institutions" are here understood to mean "... a set of constraints on behaviour in the form of rules and regulations; a set of procedures to detect deviations from the rules and regulations; and, finally, a set of moral, ethical behavioural norms which define the contours that constrain the way in which the rules and regulations are specified and enforcement is carried out..." (North, 1984: 7-8). In other words, this dissertation is written in the tradition of the New Institutional Economics.

It is important to distinguish the New Institutional Economics from the older tradition of institutional economics building on the work inter alia of Veblen, Weber, Hobson, Commons, John Kenneth Galbraith, Samuels and Boulding. The older tradition of institutional economics is a heterodox approach critical of the mainstream neoclassical approach to economic theory. Warren Samuels described the difference between (old) institutional economics and mainstream economics as follows: "In contrast with mainstream economics, which maintains that the central economic problems are the allocation of resources, the distribution of income, and the determination of the levels of income, output and prices, institutional economists assert the primacy of the problem of the organisation and control of the economic system, that is, the *structure of power*" (Samuels, 1987: 864-865, my emphasis).

In contrast, New Institutional Economics is an extension of mainstream neoclassical economics that focuses on how property rights, transaction costs and asymmetric and incomplete information affect social interaction. Some of the prominent contributors to this tradition are Douglass North, Coase, Buchanan, Tullock, Wagner, and Eggertsson.

Whereas both traditions claim intellectual descent from the work of Adam Smith, the intellectual history remains contested territory and this dissertation makes no further headway on that road. Further, since this dissertation is an application of the New Institutional Economics to inflation targeting as a monetary policy regime, it follows that the many important questions raised by the older institutional tradition (for example, the structure and distribution of power) will not be addressed here. It does not follow from this exclusion that the questions of the older institutional

economics are either unimportant or otherwise beyond the scope of economics. The exclusion signifies only an attempt at intellectual coherence and a restriction on what could otherwise have become an impractically large dissertation.

The selection of New Institutional Economics as an analytical framework also informs the political economy aspects of this dissertation. New Institutional Economics studies the role of rules (or constraints) on behaviour, especially (but not exclusively) limits on the behaviour of arbitrary government. This concern with rules finds a counterpart in the liberal political tradition which is also concerned with limited government (though by no means necessarily "minimalist" government) (Gray, 1986). Indeed, many political questions originating in the liberal tradition could be analysed with the schema in figure A.1. Nevertheless, the choice of a liberal approach does not prejudice the judgement on the efficient location of the monetary policy framework along the institutional possibility frontier. On the contrary, liberal proposals crowd both ends of the spectrum, with Hayek (1978) at the upper left hand corner, and Buchanan (1989 [1962]) on the bottom right.

This is not a thesis on comparative political thought and the choice of a liberal framework for the political aspects of the analysis reflects a desire for intellectual coherence with mainstream neoclassical economics and its extension in New Institutional Economics. There is no suggestion here that other traditions, such as feminist, socialist, neo-Marxist or communitarian theories would not also offer interesting perspectives on the questions at hand.

The various choices about the intellectual framework can be summarised as follows: inflation targeting is a rules-based framework for monetary policy (as argued in chapters 4 and 5); the New Institutional Economics is explicitly concerned with the analysis of such rules, as is the liberal tradition in political theory. It follows that a combination of New Institutional Economics and liberal political theory offers at least *ex ante* a promising tool for assessing inflation targeting as a framework for monetary policy.

The trade-off between order and disorder in the monetary policy regime is of pressing concern, at this time, for South Africans. Inflation targeting has defined new limits for the role of government in monetary policy, domestically, since February 2000 (shown as point I on the institutional possibility frontier in figure A.1). The rapid decline of the external value of the Rand towards the end of 2001, the subsequent upsurge in domestic inflation and the South African Reserve Bank's (SARB, hereafter) response of raising domestic interest rates, has sparked a lively

debate about monetary policy in the press, business meetings and the halls of government. This serious debate has, in addition to the expected critical analysis of the policy stance, also raised questions about the suitability for South Africa of inflation targeting, as such (Business Day, 2002; Petros, 2002; Power, 2002; 2003).

The objective of this dissertation is to evaluate the move along the institutional possibility frontier implied by the adoption of inflation targeting. The research question is, therefore, a relative one, that is: whether it was a "good" decision to substitute inflation targeting for some preceding framework for monetary policy (an eclectic mix of informal money growth targets and eclectic inflation targets in the case of the SARB)? The term "good" is not used here to suggest optimality (though it is not excluded), but rather an improvement on two levels: firstly, positively in terms of efficiency and, secondly, normatively. The assessment of inflation targeting, as per the title of the dissertation, refers to both positive and normative levels.

Having stated the objective, it is important also to state what will not be attempted below. In addition to the controversies over monetary policy there are lively debates on many aspects of economic policy in South Africa at this time. For example, it can hardly be denied that the distribution of income and wealth is highly skewed in South Africa (Terreblanche, 2003). But whether or not one thinks that government should take active measures to redistribute income and wealth does not seem to have any implications for the institutional assessment of the monetary policy framework. Indeed, some of the foremost economic texts on the question of inequality - for example Sen (1997) and Atkinson (1975) – do not mention monetary policy in their respective indices. The same is true of Alan Krueger's recent monograph on inequality (Krueger, 2002). Questions of unemployment and poverty are, however, discussed below where these issues intersect with monetary policy.

A critical institutional assessment of a monetary policy framework is naturally preceded by a consideration of the institutional role of money in a decentralised economy. Consequently the first part of this dissertation considers rules and authority in monetary policy at a general level, starting with the role of money in a decentralised economy in the first chapter, and the rule of law in the second, before considering the historical record of rules and authority in monetary policy in the third chapter.

The first chapter argues that money serves, importantly, to lower transaction costs in a decentralised economy and the theory of New Institutional Economics is used to find the

implications for monetary policy of this role for money. The trade-off between order and dictatorship arises where rules (such as the framework for monetary policy) is used to limit behaviour. This trade-off is also known as the paradox of power, and that is the term that will be used throughout the dissertation. The paradox of power occurs in monetary policy, too, and this leads to the discussion of how the rule of law is helpful in situating the monetary policy framework on the institutional possibility frontier of figure A.1. The rule of law does not prejudge the position on the frontier, but is concerned with finding a combination of limits on private and government behaviour that facilitates (or constitutes) social order.

From the discussion in chapter 1 it follows that there are no blueprints for efficient institutions. However, institutions that economise on the social losses of dictatorship and order are more efficient than their rivals, and consequently a set of characteristics can be identified that are, typically, shared by efficient institutions. Chapter 1 identifies five such characteristics from the New Institutional Literature and they will jointly form the analytical tool for evaluating the efficiency of the monetary policy framework. To these institutional criteria, chapter 2 adds a set of criteria for the rule of law to evaluate the extent to which the monetary policy framework and the political system jointly find an efficient location on the institutional probability frontier. These two sets of criteria deal with two aspects of the positive institutional evaluation of the monetary policy framework.

However there is also a normative aspect to the institutional evaluation of inflation targeting. The focus on institutions implies that the theory of 'constitutional economics'[2] could be drawn upon to consider the normative assessment of inflation targeting as Buchanan had previously done for alternative monetary policy rules (Buchanan, 1983; 1987). This evaluation is supplementary to the more traditional approach to monetary policy analysis, according to which the optimal policy is derived given the constraints of the monetary regime[3] which is considered in chapters 4 and 5 (see for example, Blanchard and Fischer, 1989; Romer, D.H., 1996; and Turnovsky, 2000).

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[2] Buchanan (1987: 585) offers the following explanation of the branch of 'public choice theory' known as 'constitutional economics': "By both contrast and comparison, constitutional economic analysis attempts to explain the working properties of alternative sets of legal-institutional-constitutional rules that constrain choices and activities of economic and political agents, the rules that define the framework within which the ordinary choices of economic and political agents are made. In this sense, constitutional economics involves a 'higher' level of inquiry than orthodox economics; it must incorporate the results of the latter along with many less sophisticated sub-disciplines". Whereas much of mainstream economics is concerned with choices within constraints, constitutional economics is concerned with the choice between constraints, distinguishing this sub-discipline as a "science of contract" as opposed to the usual "science of choice" (Williamson, 1984).

[3] Or more precisely, where the optimal policy is found by, for example, maximising the social welfare function of a representative agent (for example, Turnovsky, 2000: 393).

The constitutional focus also implies a different normative standard from that employed in the traditional approach. Whereas the normative content is traditionally captured by a social welfare function, no such function is specified in constitutional economics. Instead, Wicksell's criterion for institutional change - a re-interpretation of Pareto – is applied. Accordingly, an existing institutional argument is optimal in the Pareto-Wicksell sense if all the members of society, by their individual reckoning, are unwilling to substitute any proposed alternative institutional arrangement for the existing institutions (Buchanan, 1986: 270). This allows a normative judgement of a monetary policy regime from behind a Rawlesian veil of ignorance[4] (see for example, Rawls, 1971).

To summarise, the first chapter introduces the economic analysis of institutions (the rules of the social game) and the second chapter shows how the rule of law determines where a society is located on the trade-off implied by the paradox of power. The final chapter of part I is less abstract as it discusses the historical record of twentieth century monetary policy frameworks. Additionally, it offers an institutional explanation for this history as well as an interpretive account of the associated theoretical debate between Keynesian and monetarist macroeconomists. The chapter concludes with an account of four recent trends in central banking.

Part II of the dissertation narrows the focus to consider the theory and practice of inflation targeting as a monetary policy rule. Chapter 4 is abstract and provides an exposition of the modern understanding of monetary policy rules, as well as an account of the long-standing debate on rules versus discretion. This chapter introduces the terminology that has become essential for following the inflation targeting literature, for example the distinction between targeting and instrument rules, activist rules and rules with fixed parameters, rules with a "timeless" perspective and history dependence in rules. The fourth chapter also bridges the gap between the modern literature on policy rules and the New Institutional Economics literature. Finally, chapter 4 considers the applicability of rules to monetary policy in developing countries.

Inflation targeting embodies the historical and theoretical lessons learnt by economists and central bankers as described in chapter 3. It is a framework for monetary policy that restrains the central bank from targeting real variables in a disciplined framework focussed on an explicit

[4] The 'veil of ignorance' which attaches to choice amongst rules is critically important here. It is *a priori* easier to find agreement between parties on rules which, depending on various contingent events, will produce different final distributions, than for the same group to agree on the final distribution as such (Buchanan, 1986). It is this uncertainty that separates the criteria of Pareto and Wicksell.

target. Chapter 5 describes how this disciplined framework can be understood as a rule for monetary policy in the modern sense (described in chapter 4). The theory of inflation forecast targeting is explained and the chapter also lists the expected benefits of the policy. Before considering some important practical issues in the inflation targeting literature (escape clauses, point targets versus target ranges and the choice of the target index) chapter 5 pauses to consider the implications of inflation targeting for stabilisation policy.

Chapter 6 provides a brief survey on the emerging literature that attempts to evaluate whether the reality of inflation targeting has lived up to the promises of theory. Two alternative methodologies for evaluating the success of the inflation targeting regimes are also proposed, one, an econometric technique that is applied to South Africa in chapter 7, and the other drawing on rational choice theory.

The core of the institutional assessment of inflation targeting is located in chapter 7. This chapter measures the institutional framework of inflation targeting against the criteria of efficient institutions derived in chapter 1. At each point the South African situation is considered, too, and where the institutional design, domestically, falls short of the international best practise, reforms are suggested. The result is a list of proposed institutional reforms for the SARB's inflation targeting regime. However, this should not be construed as an adverse evaluation of the present policy regime. Indeed, the econometric evaluation as well as several other less formal tests in chapter 7 jointly suggest that the SARB's inflation targeting regime is already contributing to a more stable economic environment (in terms of output and inflation variability). Nevertheless, the institutional reforms could help the SARB to improve this record further.

One institutional trend of recent vintage that does not receive the attention it merits in chapter 7 is the trend toward greater central bank independence. However, chapter 8 has been set aside for this important topic. A separate chapter for central bank independence seems justified given the importance of the topic, but also in terms of the structure of the dissertation. Consequently, chapters 8 and 9 form a third part of the dissertation where political considerations are more clearly relevant than in the part II.

Chapter 8 demonstrates how monetary economists have solved the "democratic deficit" of independent central banks, that is: the apparent contradiction between a democratic dispensation and devolution of a powerful economic policy instrument to unelected technocrats at the central bank. This chapter also evaluates the independence of the SARB. Finally, the chapter argues that

the standard solution to the paradox of power is insufficient to locate the monetary policy framework on the institutional frontier since the limit on the government's power is not defined. This argument leads to an evaluation of inflation targeting as a framework for monetary policy on the criteria set by the rule of law as derived in the second chapter.

The remaining task of this dissertation is to complement the evaluation of inflation targeting using the positive criterion of efficiency with a normative evaluation. This normative evaluation is also undertaken in chapter 9, using the Pareto-Wicksell criterion of constitutional economics.

# PART I THE INSTITUTIONS OF MONETARY POLICY

## CHAPTER 1 MONEY IN A DECENTRALISED ECONOMY

In his *Wealth of Nations* Adam Smith (1981 [1776]) argued that society's prosperity was a function of production, which was in turn limited by the division of labour. Though Smith placed a heavy burden on the "division of labour"[5], it remains a powerful hypothesis and a penetrating analysis. What is more, it locates economic analysis as a study of men and women within society, so raising the fundamental question of social order, given the necessary interdependence of social production (Coase, 1977 [1994]: 80). And he solved this problem with a demonstration of how decentralised decision making - against an institutional background that includes property rights and money - produces a reasonably efficient allocation of resources in production through specialisation and exchange, given the motivational force[6] of all participants.

The envisioned spontaneous (market) order which Smith described[7] left only three tasks to the government: to protect society from violence (internally and externally), to provide those public goods which market failures prevent the private sector from providing efficiently and finally, to

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[5] Schumpeter complained that in Smith the division of labour "is practically the only factor in economic progress" (Schumpeter, 1954: 187).

[6] Coase's (1977 [1994]) term 'motivational force' is used here to sidestep the debate on the importance of self interest versus benevolence in Adam Smith, or the possible inconsistency between the *Wealth of Nations* and the earlier *Theory of Moral Sentiments*, which Viner (1958 [1927]) called the 'Das Adam Smith Problem'. It is sufficient for this dissertation to use Ronald Coase's (1976 [1994]: 115) conciliatory interpretation of Smith, according to which the "...great advantage of the market is that it is able to use the strength of self-interest to offset the weakness and partiality of benevolence, so that those who are unknown, unattractive, or unimportant will have their wants served...Adam Smith allows for a good deal of folly in human behaviour. But this does not lead him to advocate an extensive role for government. Politicians and government officials are also men..."

[7] Though this interpretation of Smith is not uncontroversial, it is consistent with the interpretation of, for example Stigler, Coase and the highly respected text on the history of economic doctrines by Gide and Rist (1964). These last two scholars of the history of economic thought identified three fundamental ideas at the core of Smith's thought: "the conception of the economic world as a great natural community created by the division of labour," "...the idea of the spontaneous origin of economic institutions, and ... their beneficent character..." (Gide and Rist, 1964: 85-86).

The reference to a "spontaneous" (market) order in Smith above is consistent with Gide and Rist's observations that: "...the conception of spontaneity is the one to which Smith refers most frequently... The present aspect of the economic world is the result of the spontaneous action of millions of individuals, each of whom follows his own sweet will, taking no heed of the others, but never doubting the ultimate result. The noble outlines of the economic world as we know it have been traced, not by following a plan issuing complete from the brain of an organizer and deliberately carried out by an intelligent society, but by the accumulation of numberless deeds designed by a crowd of individuals in obedience to an instinctive force wholly unconscious of the work which it was encompassing ..." (Gide and Rist, 1964: 86-87).

In opposition Myers (1983: 124) argues that Smith was "...too much of realist..." to be overly romantic about the spontaneous nature of market order. Smith was perhaps too little of a party writer, according to Myers (1983), as he described both how the market order would come about (given the right institutions) and how improbable it is that those institutions would come to pass. Whereas he admits that Smith leaves the reader feeling uncertain, Myers (1983) concluded that in the end Smith probably thought that the spontaneous order would not come about in the world as we find it.

provide an institutional framework (in particular a legal system) that would facilitate decentralised decision making. George Stigler (1965: 1) memorably summarised this modest scope for government participation[8] as Smith's vision that "...the conduct of economic affairs is best left to private citizens – that the state will be doing remarkably well if it succeeds in its unavoidable task of winning wars, preserving justice and maintaining the various highways of commerce."

Whereas Smith's second role for government – the provision of public goods due to market failures – has received much attention from economists, the third task of providing a suitable institutional framework has been somewhat underplayed (Coase, 1994 [1991]). However, this has lately changed, as mainstream economists have trained their focus on the institutions of decentralised decision making[9]. In the process the scope for beneficent government activity has broadened as 'new' market failures have been identified. These include: imperfect information, incomplete markets and transaction costs (Meier, 2001; Stiglitz, 1989). At the same time, the sometimes uncritical belief in the efficiency of government[10] has been tempered by the analysis of "government failures" by "public choice" theory, undermining the presumption that a centralised solution exists for every decentralised failure (Buchanan, 1986; 1999 [1979]). Institutional economics can be used to derive the implications of these developments for a monetary policy regime.

The chapter starts with a short introduction to institutional economics by considering the functioning of a decentralised economy, and the implications of transaction costs and uncertainty in such a setting. This is followed by a discussion of two crucial institutions for efficient decentralised decision making, property rights and money. The chapter closes with an introduction to the 'paradox of power' (which is explored more deeply in chapter 2) that accompanies institutional solutions to the problems of transaction costs.

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[8] Though Smith envisaged a modest scope for government, he was no romantic about business enterprises either. Certainly he did not spare monopolists or other collective enterprises (albeit in the private sector) from his criticism. Absent the discipline of private interest and (especially) competition, the power of corporations could end in a "...conspiracy against the public" as Smith famously feared (Gide and Rist, 1964: 111-112).

[9] Pioneers in this field include Ronald Coase (for example, Coase, 1937), James Buchanan (for example, Buchanan and Tullock, 1969) and Douglass North (for example, North, 1981).

[10] See Stigler (1965) for an analysis of Adam Smith's exaggerated confidence that government would invariably achieve its self-imposed ends, or the ends of the electorate.

## 1.1 INTRODUCTION TO INSTITUTIONAL ECONOMICS

Friedrich Hayek (1944 [1971]) wrote the *Road to serfdom* at a time when world-views were colliding. Initially, the Western Allies and the USSR struggled jointly against fascism, but soon enough Churchill would be the first to see an iron curtain drawn across Europe, separating what Hayek argued were "two irreconcilable types of social organisations." To the West were versions of capitalism (or liberal or decentralised) or "commercial" society as Hayek (1944 [1971]) called it; to the East, socialism (or centralised) or "military society" in his terms. The chasm between them is that both "choice and risk" lie with the individual in the former, whereas the individual has neither in the latter. It is the difference between co-operation and command.

Economics is mainly concerned with the analysis of social co-operation in Hayek's "commercial" society[11]. The writers of the Scottish Enlightenment sought a combination of institutions that would yield a peaceful and progressive social order, without depending for its operation either on being peopled by saints or managed by gods[12]. And it was the (perhaps, *the*) great discovery of the Scottish Enlightenment that a spontaneous social order, and not unavoidable chaos, could obtain in these circumstances[13] (Coase, 1937). In such a society, a person (or group) is led, in Smith's famous argument, "by an invisible hand to promote and end which was no part of his intention. Nor is it always the worse for society that it was no part of it. By pursuing his own interest he frequently promotes that of society more effectually than when he really intends to promote it" (Smith, A., 1981 [1776]: 456).

A decentralised economy works by allowing individuals to specialise on own initiative and then to provide for the remainder of their needs through exchange. However, decentralised order requires, at a minimum, secure property rights and an extravagant amount of information. It was not in the tradition of the Scottish Enlightenment to solve this problem of information by assuming 'perfect' knowledge either for individuals, or for some social planner. Rather, the emphasis was on people's epistemological limitations. For Hayek (1984: 13), this modest view of human capacity, or what he calls the "...constitutional limitations of man's knowledge and

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[11] This is not to deny the power of (especially institutional) economic analysis in centralised economies.

[12] The absence of any assumed coincidence of wants is an important part of Scottish and English liberalism (Berlin, 1998 [1958]). In contrast, the Physiocrats on the Continent derived their proposal for an enlightened ruler by combining the coincidence of wants which follow from an application of natural law (and so cannot be conflicting across individuals) with the practical intuition that "one man is more easily enlightened than many" as Lord Acton (2000: 10) observed.

[13] The self-regulated order of a decentralised society has variously been called a "spontaneous order" (By Hayek), "ordered anarchy" (by Buchanan) or the "invisible-hand order" (by Nozick). The common intuition in these terms is that the social order is not the result of conscious effort by any of its constituent parts (Cunningham, 1979).

interests, the fact that he cannot know more than a tiny part of the whole society and that therefore all that can enter into his motives are the immediate effects which his actions will have in the sphere he knows..." is central to the solution suggested by Smith and others[14].

It is the price mechanism which, in a competitive market, solves this information problem to a satisfactory extent[15] and provides the incentives for using that information (Wagner, 1993). On this view "the market" is the institutional framework, or network of links, within which voluntary exchange manifests (Buchanan, 1999 [1964]). And competition is the means by which information is acquired and disseminated along this network, creating in Hayek's (1984 [1946]: 106) words: "...the unity and coherence of the economic system which we presuppose when we think of it as one market."

Notwithstanding the power of this demonstration, it is - as described - only "half a theory" (North, 1984). The efficacy of the price system to bring about spontaneous social order is conditional on the gains of specialisation and trade exceeding the costs of trade, and this cannot be assumed. Indeed, for much of history and in most societies, the cost of trading was exceedingly high and prevented the transition to modern decentralised production (North, 1991). The New Institutional economists[16], especially Douglass North, have suggested that it is the political and economic institutions (as defined below) in an economy that form the link between the theory of production (by specialisation and exchange) and transaction costs that limit the extent of the market (see for example North, 1981; 1984; 1990).

In Ronald Coase's (1937) seminal paper on the 'nature of the firm' he argued that many of the manifested features of the economy (as we know it) can only be explained by the existence and the accommodation of transaction costs. Indeed, a firm – where an entrepreneur and not the price system allocates resources – is out of step with the logic of decentralised decision making. However, given transaction costs (like the cost of negotiating a contract for each trade, or of

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[14] The methodological individualism of economic theory has, therefore, always been a part of a theory of society (Hayek, 1984).

[15] Towards the end of his career Paul Samuelson tried to capture what economists had learnt from the lengthy debate between proponents of decentralised decision making and those who argued for the "feasibility of socialist rational pricing" and his conclusion was both gracious (to Hayek, a long standing academic opponent) and modest (in its claims for the decentralised system). "Hayek has been persuasive," Samuelson admitted "...in arguing that experience suggests that only with heavy dependence on market pricing mechanisms can there be realised quasi-efficient and quasi-progressive organisation of societies involving humans as Darwinian history has equeathed them" (Samuelson, 1993: 5). Efficiency (in the ultimate sense) never obtains, neither in the decentralised systems of presently capitalist economies, or in the unlamented socialist experiments of the twentieth century. At stake in this dissertation is the potential contribution for the monetary policy framework in raising the quasi-efficiency of the decentralised system.

[16] New Institutional Economics is an extension of mainstream economics that focuses on how property rights, transaction costs and asymmetric and incomplete information affect social interaction (see, for example Eggertsson, T., 1990).

determining a price[17]) the rationality of "areas of planning" within and besides the market is apparent from standard economic reasoning (Coase, 1994 [1991]).

The implications of Coase's insight reached far beyond industrial economics though. The box he had opened would not be closed again and released considerations of not just the costs of establishing prices, but also that of drawing up and monitoring contracts, settling disputes, agreeing on methods of payment, delimiting and enforcing property rights and indeed the entire legal system, the monetary system and the political system within which decentralised decision making functioned.

Nearly sixty years after his seminal paper, Coase was able to look back from the podium in Stockholm where he had just received the Nobel Memorial prize for Economic Sciences, and where he would summarise the simple but powerful idea for which he was being honoured: "it makes little sense" he reminded economists, on that occasion "...[to] discuss the process of exchange without specifying the institutional setting within which the trading takes place since this affects the incentives to produce and the costs of transacting..." (Coase, 1994 [1991]).

The focus on transaction costs, broadly understood, had a far reaching implication for the way economists viewed economic history, the efficiency of markets and institutions like money. A second insight of Coase's (1960) provided a sure footing for the importance of history in economic development. The argument is as follows: if property rights are comprehensively defined, universally recognised and other transactions costs zero (all of these assumption were non-controversial in the theory of the time) then the initial assignment (or distribution) of property rights would have no effect on the allocative efficiency of the outcome produced by the price system. George Stigler called this the "Coase theorem".

The importance of this theorem is entirely negative, i.e. since transaction costs are not negligible, the allocation of rights (including property rights) matters profoundly for the eventual outcome of the economy (Samuelson, 1993). Nor can any subsequent inefficiency simply be corrected by a Pigovian transfer to correct for the malevolent externality (Coase, 1994 [1991]). The initial distribution, the legal system that defines and enforces it, all these become crucial factors determining the efficiency with which societies use their resources and the eventual material

[17] A more extensive list of transaction costs includes: search costs (for price and location about other sellers and their wares); bargaining costs; drawing up contracts; monitoring contracts; enforcing contracts; protecting property; barriers to entry; agency costs; co-ordination costs (Eggertsson, T., 1990; Kasper and Streit, 1998; World Bank, 2002).

prosperity of those societies. "History matters", as Douglass North (for example, 1990: 52) is wont to say[18].

The prosperity or decline of an economy is therefore greatly influenced by the allocation of rights, both initially and over time, as well as the many other mechanisms – called institutions – that lower transactions costs (Buchanan, 1999; North, 1991). Formally, institutions are "...a set of constraints on behaviour in the form of rules and regulations; a set of procedures to detect deviations from the rules and regulations; and, finally, a set of moral, ethical behavioural norms which define the contours that constrain the way in which the rules and regulations are specified and enforcement is carried out...." (North, 1984: 7-8), or in game-theoretic terms, the institutions are the "rules of the game" of social interaction (North, 1990; 1991).

An intricate network of institutions – called the institutional matrix – facilitates all social interaction. This matrix is composed of both formal rules (for example legislation on mining rights) and informal rules (for example customs and taboos) and is both political (for example proportional presentation as a voting rule) and economic (for example tariffs). A further distinction can be drawn between those (external) rules that are imposed on society by the state and those (internal rules) that arise spontaneously in society[19] (Kasper and Streit, 1998). Finally, institutions should be distinguished from the organisations that implement the rules[20].

Institutions can lower transaction costs, thereby facilitating specialisation and exchange, by rendering behaviour more stable and predictable[21], or in the words of Kasper and Streit (1998:

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[18] From this observation it follows that the distribution of income and wealth fall well within the scope of institutional economics. That this issue does not receive a more substantive treatment in this dissertation reflects only the realization that the monetary policy framework has itself little positive contribution to make towards achieving a more equalitarian distribution of wealth and income, excepting the passive contribution that preventing high inflation neutralises one of the forces that cause an increasingly skew distribution of income (Romer, C.D. and Romer, 1998). However, this realisation should not be taken as an argument that the total policy framework should not address inequality; whereas monetary policy may not address inequality directly (and may also require prudent fiscal policy) that still leaves ample scope for redistribution through the education system, to name but one example (Krueger, 2002).

[19] Internal institutions can be informal for example conventions or good manners, or formal as is the case for self-regulated professional associations. However, societies have often found it useful to impose rules externally on themselves via the political process. Kasper and Streit (1998) list a number of reasons why such external institutions are sometimes preferable, including: the state's comparative advantage in power; the credibility that central power can bring to contract enforcement; the potential ambiguity of internal rules; the ability of the state to implement rules dispassionately; free riding; the tragedy of the commons and finally, prisoner-dilemma type situations can often be resolved with credible external commitments.

[20] An example of this distinction is between the institution of a policy rule such as a constant growth in the money supply and the central bank which is the organisation that implements that rule. Kasper and Streit (1998: 98) defines an organisation more narrowly as "...a more or less durable combination of property rights to production factors under a leader to achieve some shared purpose."

[21] North (1991: 98) argues that institutions "...permit low cost transacting and producing in a world of specialisation and division of labour".

28): "...the key function of institutions is to facilitate order: a systematic, non-random and therefore comprehensible pattern of actions and events". The spectre of anarchy haunts decentralised decision making in the absence of such stabilising institutions.

Institutions, like property rights, can also contribute to conflict prevention and resolution by allocating a sphere of private influence to each property owner and by providing a rule for resolving conflict (Buchanan, 1975; Kasper and Streit, 1998). Economic and social rights could be – and increasingly is, according to T.H. Marshall's (1987 [1950]) classic text – seen as additional stabilising institutions. Given the unequal distribution of property in South Africa, it is not surprising that both the Final Constitution and the Bill of Rights would make specific provision for economic and social rights (Archer, 2002; Republic of South Africa, 1996: sections 24, 25, 26, 27, 28, 29, 35) and for their progressive realisation (Republic of South Africa, 1996: sections 7, 25, 26, 27, 29). Whether the realisation of these rights will ultimately support or undermine the decentralised system depends, however, on the manner of their attempted realisation; whether it occurs peacefully, as in Sweden, or disruptively as in Zimbabwe. If the monetary policy framework is not the vehicle for the realisation of these economic and social rights – and it is contended here that it is not – then South African society will have to devise alternative institutions to provide for their progressive realisation[22].

In reality, rules are seldom irresistible and consequently not invariably unresisted. Hence there are compliance (or enforcement) costs to institutions that weigh against their efficiency[23] (North, 1989). If, for example, the compliance cost of a rental contract exceeded the expected benefit of the transaction to either party, then exchange would be as surely limited as though the institution had not been in place. Efficient formal institutions are designed with the goal of lowering transaction costs, and the same criterion holds for the evolution of efficient informal institutions.

Since institutions affect the costs of social interaction, they shape the incentives facing decision makers in economics and in politics (North, 1991). Though the rational response to incentives has long been central to economic analysis, the New Institutional Economics has focussed

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[22] The Final Constitution (section 184) charges the South African Human Rights Commission to investigate the realisation of economic and social rights in South Africa. Their 4th annual report was critical of the present effort by government to realise these rights, but they do not mention any role for the monetary policy framework in this regard (South African Human Rights Commission, 2002)

[23] The initial distribution of rights also has an important implication for the credibility of rules over time. For example, a very unequal distribution of income combined with a democratic dispensation could lead to a conflict between the government's task of protecting property rights and the government's role as instrument of the (majority of) society. Paradoxically then, the maintenance of property rights over time may require redistributive policies at some point, to prevent gross inequality from undermining the institutional matrix.

attention on the institutional matrix which often shapes those incentives. This focus has helped economists to understand the rationality of many seemingly irrational economic and political arrangements, like sharecropping in Africa (see for example, Collier and Gunning, 1999). It has also helped economists to understand why economic prosperity has been so rare, and why economic policies cannot offer blue-prints for development against different institutional backdrops[24].

Though there are no blueprints, efficient institutions do share some common characteristics, including (see for example, North, 1989): firstly, their success in bringing stability and predictability in social interaction; secondly, cost efficiency; thirdly, incentive compatibility; fourthly openness; and, finally for the institutional matrix, overall coherence. In the 2002 World Development Report the World Bank (2002) used the term "good governance" to describe the successful provision of efficient institutions.

### *1.1.1 Stability and predictability*

Institutions that facilitate predictable behaviour lower transaction costs in three ways: lowering information costs, increasing the mobility of capital and spreading risk (North, 1991 105). Stability and predictability is what Kasper and Streit (1998) refer to as a basic trust which is a necessary condition for social co-operation. When behaviour is unconstrained by (formal or informal) rules, two parties to a transaction may have to expend significant resources in establishing trustworthiness before exchange can take place[25]. In the case of credit transactions, for example, the gathering of requisite information about solvency and collateral may be prohibitively expensive[26]. But a formal institution like a legal contract backed by the state – or an

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[24] Institutions are the combined result of history and design by epistemologically limited women and men, and therefore, clearly imperfect. In a liberal, or "open society", the tentative nature of all institutional arrangements is recognised, and institutions are continually – if slowly – improved through criticism. Closed, or 'tribal', societies perpetuate their institutions uncritically (Feyerabend, 1961). It is capitalism's capacity for improvement - not the undoubtedly significant advances already made by capitalist societies - which underlies the optimistic evaluation of Western society by the likes of Karl Popper (1992 [1981]) and the plurality of ideas in the West is evidence that this process of improvement is ongoing. Indeed the hard-hitting criticism of the West by its own citizens, as on the streets of Seattle, Washington and Genoa, is *prima facie* evidence thereof. Chapter 2 elaborates on the connection between institutions, critical rationalism and the scope for improvement.

[25] In terms of figure A.1 this means that institutions are required to move down the vertical axis (to lower the cost of disorder). At the same time, the negative slope of the institutional possibility frontier makes explicit the cost (in terms of rising government power) of using formal institutions to facilitate social interaction in this way. Additionally, the location of the frontier indicates that a society's history (in terms of conflict or co-operation) influences the terms of this trade-off profoundly. In some countries (the former Yugoslavia seems to be an example) the trade-off is so unfavourable as to render cooperation unviable. Whether the trade-off is ultimately sustainable in South Africa will presumably depend on whether the substantial portion of the population that is presently marginalised can be given a stake in a stable social dispensation.

[26] This is why informal institutions like clans (where family association and social enforcement lower the cost of information) play an important role in providing financial services in rural Africa (Collier and Gunning, 1999).

entrenched custom of honesty, enforced by social sanction – renders behaviour more predictable and diminishes the information requirements for a transaction.

Likewise, capital becomes more mobile when local knowledge is no longer essential for successful transacting, as happens when commercial practises and commercial law become standardised between societies. Finally, an equity market is an example of an institution that spreads the risk of enterprise across many investors (and allows investors to spread their portfolio risk across many investments) by enforcing rules as to accounting practises, reporting and so on, diminishing the information costs to potential investors. Both formal and informal institutions facilitate co-operation in a society of people with different ends, different abilities and different resources (particularly different and limited information) by establishing widely shared and predictable expectations of behaviour (Buchanan, 1975; Cunningham, 1979; Popper, 1966b).

The reference to expectations has already indicated that institutional economics is concerned not only with the problem of efficient allocation at a moment in time, but more so with the challenges posed by the allocation of resources over time; the aim is to understand economic growth, stagnation or decline. Uncertainty writ large – not merely insufficient information – enters the analysis with this focus on time. Given uncertainty, economic decisions are frequently aimed at enhancing future flexibility rather than satisfying some ultimate aim. "The immediate purpose of a man's efforts" Hayek argued, "will most often be to procure means to be used for unknown future needs – in an advanced society that generalised [sic] means, money, which will serve for the procurement of most of his particular ends" (Hayek, 1976: 9). This role of monetary institutions is discussed in greater detail below.

### *1.1.2 Cost efficiency*

Resources are required to define, monitor and enforce institutions, as will be evident from the discussion of property rights below. The benefits of an efficient institution (in terms of lower transaction costs) must, accordingly, exceed the implicit and explicit costs of that institution[27]. This cost-benefit evaluation is complicated by the interrelated nature of institutions in the institutional matrix mentioned above. Certain formal institutions may be efficient when

[27] For example, the legal system reduces the cost of transacting by enforcing contracts. However, if the legal process is expensive, or otherwise cumbersome, it will fail to solve the cost of contracting efficiently, and informal institutions for enforcing contracts (gangsterism is an example) may evolve as a rational response.

combined with favourable informal institutions, but counterproductive in another matrix of informal institutions (North, 1990). In this sense, efficient solutions match the matrix in which they have been embedded[28] (World Bank, 2002).

Institutions do not invariably pass this test of cost-efficiency. On the contrary, the New Institutional economists have argued that the stagnation of the bulk of economic history can be ascribed to inefficient formal and informal institutions (see for example the analysis in North, 1984; 1990). Nor do the efficiency of institutions in an economy during one period imply that these institutions will be efficient in another era (see for example, the historical analysis in Baumol, 1990).

### *1.1.3 Incentive compatibility*

Efficient institutions create incentives that encourage 'good' behaviour, i.e. behaviour consistent with the goal of the institution (World Bank, 2002: 6). Institutions with built-in feedback mechanisms that penalise behaviour at variance with the rule, and reward consistent behaviour, are incentive compatible. Such institutions also gain credibility as the participants have an incentive to stick to the rules over time. In this way, incentive compatible institutions add to the predictability of behaviour, both by policymakers, firms and individuals.

Two further important aspects of incentive compatibility are the requirement of generality and certainty (or transparency) (Kasper and Streit, 1998). A reasonably efficient institution facilitates social interaction by providing rules and enforcement mechanisms, but not by biasing the outcome of social interaction. The offence of biased (or discriminatory) rules is not against justice alone, but also against efficiency, as it encourages rent seeking (Baumol, 1990). Likewise, if rules are not transparent, they cannot be incentive compatible, as it would be difficult to know when the rule has been broken. Incentive compatibility, therefore, requires general and transparent institutions supported by a feedback mechanism that encourages good behaviour.

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[28] Ball (1999) applies this criterion of 'matching' in an institutional evaluation of monetary policy regimes. He argues that an independent central bank may be an efficient component of the monetary policy regime in a country with credible monetary authorities, but fail in a country where such credibility is absent. In the latter case more rigid monetary institutions (perhaps dollarisation) may be required to achieve stability and predictability in monetary matters.

A second example of institutional matching is Rodrik, Subramanian and Trebbi's (2002) observation that entrepreneurs in Russia discount the credibility of property rights despite the capitalist legal system of recent years, while Chinese entrepreneurs have learnt to trust their property rights (and so invest) despite the socialist legal system.

### *1.1.4 Openness*

Institutions evolve, though slowly, over time. Behind the institutional development lie the responses of individuals and groups to the tremendous uncertainty in social life (Acemoglu, 2003). Every change in the external circumstance (disease, famine or natural occurrences) of society requires adjustment from the members of society in their various overlapping identities. Further, endogenous events (like technological innovation, or cultural transformation, or economic development) require social adjustment. Institutions can become anachronistic if not open to change as the environment and the rest of the institutional matrix change. Nor can ready-made solutions necessarily be adopted from the experience of other countries[29] (Cunningham, 1979; Kasper and Streit, 1998; World Bank, 2002).

The openness of its institutions is the point at which the rationality, or otherwise, of the society becomes apparent. A rational society embraces the critical method of trial and error; with its members (acting alone or in groups) proposing bold solutions to problems, but checking them against the outcomes, and responding dynamically to the success or failure of the experiments[30]. For Feyerabend, the adoption of the critical attitude is "the most fundamental difference between the closed society that is governed by a myth and an open society[31]" (Feyerabend, 1961: 48) [32]. Institutions, which are not open to criticism and change, are rarely efficient over time[33].

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[29] The contextuality of institutions does not prevent learning from the experience of others (World Bank, 2002). Some institutional lessons are robust, for example, the impossibility of implementing a high employment rule with monetary policy.

[30] In the economic world these solutions include: new goods, or goods of a new quality; new methods of production; opening of new markets; acquisition of new supply sources for inputs; new organisational procedures in industry; innovative use of already existing technology or the development of new technology; new formal constraints on behaviour, and other innovative entrepreneurial activities (Baumol, 1990; North, 1990; Schumpeter, 1934).

[31] In *Broken April* Ismail Kadare (1991) provides a vivid example of how a the strict moral code, the so-called *Kanun* (or code of customary law) of the Albanian highlanders - that maintained the integrity of the society efficiently in the wake of the Ottoman conquest - has since become destructive, because rigid and consequently anachronistic.

[32] This essay by Paul Feyerabend, though forceful in its argument for critical rationalism, does not reach the extreme positions which Feyerabend explored later in his career, for example in *Against Method* (Feyerabend, 1978). It is only the critical rationalism of his earlier contributions – close as they are to the views of his teacher Popper -that are used here.

[33] Formal political institutions, like a democratic model for electing leaders, play a central role in opening the institutional matrix to improvement, in Popper's (1966a: 126) words: "Democracy provides the institutional framework for the reform of political institutions. It makes possible the reform of institutions without using violence, and thereby the use of reason in the design of new institutions and the adjusting of old ones. It cannot provide the reason."

Government - or any other form of coercion[34] - can arrest society's ability to respond rationally to change, by preventing its members from undertaking entrepreneurial experiments in the broadest sense, or by eliminating competition. Further, governments can interfere with the dynamic adaptation of institutions by isolating the country from external influence and, more importantly, from external competition. Such isolation can take the form of trade restrictions, capital restrictions, or restrictions on the flow of people. That is to say, openness - which has lately been associated with globalisation - plays a crucial role in the ability of a society to adjust to change.

Indeed, the liberal argument for decentralised decision-making is also an argument for international integration. If society benefits from the free and competitive interaction of its members acting on their overlapping local knowledge, then society will benefit if it could similarly interact with other societies, which will likewise have different experiences and knowledge. This point must not be overstated, though; openness is a necessary, but never a sufficient condition for economic advancement, and a host of institutions (both formal and informal) are required to exploit the opportunities offered by openness.

### *1.1.5 Overall coherence*

A final requirement for efficient institutions is overall coherence of the institutional matrix. Institutions can undermine one another if unhappily paired. The lens of institutional evaluation must therefore not only reveal inefficiencies of particular institutions, but also consider the coherence of the institutional matrix at a larger magnification.

Political economy considerations enter the analysis at this point, since the distribution of rights and power must not only be efficient in the manner described above, but also politically sustainable[35]. In this regard James Buchanan (1975: 22) argued that "...the whole institution of contract... rests on the possibly shaky foundations of mutual agreement on individual rights, including agreement by an enforcing agent, a state, which must also limit its own behaviour".

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[34] The potential malevolence of corporate power is discussed below. Further, and critically for monetary policy, Blinder (1997b) has warned that financial markets could gain excessive influence over monetary policy. The independence of the central bank discussed in chapter 8 is, therefore, not only relative tot government, but also from financial market influence. Additionally, the modern conception of rules (as per chapter 4) allows financial markets to co-operate with a central bank, rather than to undermine it (Brash, 1996).

[35] North (1989: 662) refers to "equilibrium" for the coherence of political and economic institutions.

The five conditions for efficient institutions described above neither proscribe an institutional blueprint for a country, nor does it suggest immediate policy implications. At the same time it dispels any presumption that *laissez faire* is an implication of the economic description of decentralised decision making. Indeed, neither *laissez faire*, nor a minimalist government follows as a matter of course form the liberal conception of society (Hayek, 1984). Nor are laissez-faire policy prescriptions to be found in the works of the Classical political economists (Keynes, 1926). Rather, economists have emphasised that a favourable combination of institutions, government policies and private behaviour is required for social order[36].

Even in a brief introduction to New Institutional Economics, like the above, property rights are frequently mentioned. Consequently, the next section describes the role of property rights in a decentralised economy. A second reason for this elaboration about property is the close connection between property rights and monetary institutions which will be explored in a subsequent section.

## 1.2 PROPERTY RIGHTS

Property rights are formally defined by North (1989: 661) as: "...the bundle of rights over the use and the income to be derived from property and over the ability to alienate as an asset or a source of income." The institutions surrounding property are crucial in decentralised decision making for three reasons, i.e.: they define who the actors will be in production and exchange, they influence the decision maker's incentives, and they lower transaction costs (see for example, Alchian, 1987; Libecap, 1989; North, 1991).

These are positive reasons for considering property rights, but there are also normative reasons. Liberal authors have long emphasised the importance of property as a necessary check on the power of external influences over the life of a person. In the same way that property defines the parties to an exchange, property defines the sphere of private influence which has been so

[36] In contrast with the exaggerated confidence of Cartesian rationalism, the modest view of humanity in the work of the Scottish Enlightenment and the emphasis on conflicting ends and different resources compelled political economists to conclude that "...the world is not so governed from above that private and social interest always coincide. It is not so managed here below that in practise they coincide," as Keynes (1926: 57) argued, leaving much scope for political initiative to improve decentralised cooperation.

cherished by liberal writers since Erasmus[37]. A typical sample from this literature is Hayek's (1944 [1971]: 78) claim that "...the system of private property is the most important guarantee of freedom..."[38] On this view, property is an essential condition for the central liberal doctrine that a person should, as John Stuart Mill (1992 [1859]: 90) formulated it, not be "...accountable for his actions, in so far as these concern the interests of no person but himself" or as the economist Jacob Viner (1958 [1947]: 122) summarised the essence of liberalism succinctly: "... the individual cannot be pushed around by other individuals or by groups of which he is not part."

It is, however, the positive function of property rights which chiefly concerns the New Institutional Economics. Historically, at least, the state has played a crucial role in defining and enforcing property rights, while property rights have in turn contributed to the economic rationale for the state[39,40]. In actual economies, the definition and enforcement of property rights are always incomplete though, and Weimer (1997) suggested that the extent to which the following four characteristics of property rights are realised is greatly relevant to decentralised decision making, they are: the "clarity of allocation", the cost of transference, cost of exclusion, and the credibility of the rights over time. A brief discussion of these characteristics follows below.

Whereas the *de jure* allocation of property rights is often clear, the *de facto* assignment of rights is often less precise and may undermine the ability to transfer the property rights, the right of exclusion and also the credibility of the *de jure* allocation (Weimer, 1997). Mainstream economics predict many adverse consequences from the imprecise *de jure* and *de facto* allocation of property,

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[37] Buchanan (1975: 9, 21-22) locates what he calls the "logical foundation of property" in the need to prevent and resolve conflict in society. In his words: "The logical foundation of property lies precisely in the universal need for boundaries between 'mine and thine'. Escape from the world of perpetual Hobbesian conflict requires an explicit definition of the rights of persons to do things...a necessary starting position for a society of free individuals, related one to another in a network of interdependence, is some agreement on a structure of rights, which, in effect, defines the entities who enter negotiations. It is difficult even to imagine a relationship when such mutual agreement is wholly absent."

[38] The roots of this doctrine are found in the organisation of some ancient Greek city states. As the 1st century Greek historian, Strabo, wrote with reference to the city state of Crete: "the lawgiver... seems to take for granted that liberty is a state's highest good and for this reason alone makes property belong to those who acquire it" (quoted in Hayek, 1973).

[39] For Douglass North (1981: 17-18) a theory of the state and property rights are two essential ingredients for understanding the evolution of modern economies. "A theory of the state is essential because it is the state that specifies the property rights structure...a theory of property rights is necessary to account for the forms of economic organisation that human beings devise to reduce transaction costs and organise exchange".

[40] North (1981: 21) located the rationality behind the state's role in property rights in the government's advantage in force, in his words: "...the essence of property rights is the right to exclude, and an organisation which has a comparative advantage in violence is in the position to specify and enforce property rights...here the key to understanding the state involves its potential use of violence to gain control over resources".

including: the tragedy of the commons and under-provision due to externalities (Coase, 1994 [1991])[41].

Property rights, as defined above, refer to titles over "bundles of rights" not to physical objects. These bundles of rights are open-ended, and can be divided in response to demand. In this sense property rights are divisible[42] and this complicates the task of allocating rights unambiguously. Nevertheless, divisible property rights facilitate greater specialisation in the use of resources and hence extend the scope of the market. The state has an important dynamic role to keep pace with societies demand for new divisions of property rights and to provide the means for their effective allocation (Kasper and Streit, 1998). In contemporary South Africa the government has taken an active role in this regard where, for example, the intellectual property rights of indigenous societies are concerned (see the example discussed in Wynberg, 1998).

Decentralised decision-making relies explicitly on the ability of people to exchange goods, services and most importantly information. Exchange requires a mechanism for re-assigning property rights; the institutions of contracting lower the cost of exchanging property rights (Buchanan, 1986; Libecap, 1989; North, 1991). "Contracts" are of central concern in New Institutional Economics. Where supportive institutions (like the legal system, social custom and so on) are weak, contracts have to be very detailed and are expensive to construct, while monitoring and enforcement are similarly expensive. The state can lower these costs by maintaining a functioning legal system and also by standardising weights and measures and in modern economies, by providing a stable means of final payment, money (Buchanan, 1975; Kasper and Streit, 1998).

However, governments can also raise the cost of contracting by prohibiting certain transactions, by taxing others, or, by increasing the number and complexity of administrative procedures involved in contracting (Weimer, 1997; World Bank, 2002). Further, government can interfere indirectly with exchange by undermining the functioning of the price mechanism, directly by way of price controls, and indirectly through an inflationary monetary policy (about which more in the next section).

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[41] The proposed change to legislation in South Africa according to which *de jure* owners of apartments will find it difficult to evict non-paying occupiers is an example of how *de facto* allocation may overrule *de jure* allocation of property.

[42] For example, mineral rights on a property could be exchanged in a different transaction from the right to residence on the property.

The right to exclusion is intuitively important in the specification of property rights. Where exclusion is uncertain, owners have to expend resources to secure the integrity of their property in what Buchanan (1975: 25) calls "predatory and defensive activity". When the right of exclusion is undermined, the market value of property typically diminishes (Kasper and Streit, 1998). Further, since the resources spent in securing property rights are diverted away from productive activity, uncertainty in property rights undermines the economy's efficiency. The definition, enforcement and protection of property rights, therefore, have an important impact on the incentives for productive activity (de Alessi, 1990; Libecap, 1989).

Finally, the expectation must be that property rights will be preserved in the future. The issue of credibility has already been touched on above and derives from the fundamental role played by institutions in the temporal dimension of economic activity. A paradox of institutional economics is that the government's comparative advantage in violence, which allows it to define and enforce property rights in the first place, also grants sufficient power to government to threaten the persistence of property rights (Weimer, 1997: 7-8). The final section of this chapter returns to this paradox, which is also relevant to whenever the government assumes the monopoly right to issue money.

The following section considers the role of money in a decentralised economy and also the close association between property rights and money, by considering how the latter affects the four characteristics of property rights mentioned above: the "clarity of allocation", the cost of transference, cost of exclusion, and the credibility of the rights over time. A brief discussion of these characteristics follows below.

## 1.3 THE ROLE OF MONEY AND MONETARY INSTITUTIONS

Monetary theory has long been an exception to the general reluctance of economists to incorporate transaction costs directly into economic theory (Coase, 1994 [1991]; Kasper and Streit, 1998). Economists have seldom had cause to disagree with Mill's (1929: 488) argument that there cannot be "...intrinsically a more insignificant thing, in the economy of society, than money," but that "...it [money] is a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it." Money is powerful in reducing the transaction costs which threaten to limit the division of labour and exchange in decentralised

decision making[43]. Accordingly, money developed in various forms in almost all societies of any level of complexity. Further, governments have, over time, monopolised the right of issuing money in an economy, partly to standardise the means of payment (so lowering transaction costs) and partly to complement government revenue (as discussed in chapter 3) (Eggertsson, T., 1990).

Whereas commodity money – gold or silver coins, and so on – required little management from government (except restraint in debasing the currency), fiat money requires an institution called the monetary policy regime as a necessary counterpart. Bordo and Schwartz (1999: 152) have recently suggested a detailed definition of a monetary policy regime and of the entire monetary regime. A monetary policy regime is defined as the formal and informal limits on the ability of monetary authorities to affect macroeconomic aggregates using their policy instruments. Accordingly, there are three aspects to a monetary policy regime, that is: an objective for the policy, a strategy for achieving the objective and finally, an institutional structure to support the pursuit of that objective (Paulin, 2000). The monetary regime moves beyond the definition of the policy regime to include the public's expectations about monetary policy and the policymaker's expectations about the public's reaction to monetary policy[44]. In the New Institutional sense of the word, money *per se* is not an institution, but the monetary regime is, or rather, it is a combination of (formal and informal) institutions.

Before considering the connection between monetary policy and property rights – and the reasons why Henry Simons (1936: 1) feared that "...the monetary problem...[was] the great intellectual challenge to the liberal faith", it is useful to describe (briefly) the way in which money lowers transaction costs in a decentralised economy, these are: money reduces uncertainty, acts as unit of account and is a store of value.

Coase's theorem explains the sense in which money lowers uncertainty and, hence, transaction costs[45]. In a world of positive transaction costs, a decentralised economy could fail to achieve the allocative efficiency of the frictionless perfect competition model, both in terms of consumption and production (by limiting specialisation and exchange). The owner of an initial endowment of

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[43] In addition to reducing dramatically the volume of information required for trading (as discussed below) money also lowers secondary transaction costs like the cost of storage (Kasper and Streit, 1998).

[44] The institution that grants a monopoly on the issue of money to some monetary authority is yet another institution relevant to the monetary policy regime. This dissertation does not consider alternatives to this institution (as per the Free Banking School). Rather, the focus is on choices of policy regimes given a government monopoly on domestic money.

[45] Absent transaction costs and uncertainty there would be no rationale for money (Kasper and Streit, 1998).

property rights has to initiate a chain of contracts to reach some desired end portfolio given her preferences. But information is required to know not only what options exist, but also how to transform the existing endowment of rights into the desired bundle of rights. Using money reduces uncertainty and economises on contracting by shortening the length of transaction chains between the initial endowment and desired outcome[46] (Brunner and Meltzer, 1971). Money also reduces uncertainty by lowering the information required for trading dramatically, by acting as a unit of account[47].

Further, money is also an asset, and can act as a store of value (Kasper and Streit, 1998). As argued above, holding money is one way of acquiring flexibility in the face of an uncertain future and given the epistemological limitations assumed by liberal economics. In these circumstances money is held as an intermediate end, to be disposed of in the future when the decision maker has more precise knowledge of her future desires or opportunities (Hayek, 1976: 9).

In addition to these specialised functions of money, it also plays an important role in the way property rights lower transaction costs. This claim can be demonstrated by considering the four characteristics of property rights mentioned above (the "clarity of allocation", the cost of transference, cost of exclusion, and the credibility of the rights over time).

Where the "clarity of allocation" is concerned, money has a two-fold connection. Firstly, money is one of the assets to which property rights can be assigned, and violated[48]. Secondly, money is an infinitely divisible asset and as a means of exchange facilitates the divisibility of other assets too.

As a means of exchange money is intimately involved in the process of contracting property rights. While changes in relative prices carry important information for buyers and sellers, and should (*ceteris paribus*) lead to an adjustment of asset portfolios and consumption bundles, a change in the value of money (the inverse of the general price level) has no direct implication for consumption or investment. However, when the value of the money falls rapidly (i.e. rapid inflation) it becomes difficult to distinguish between absolute and relative price changes. The

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[46] So-called "Shopping-time models" are used to formalise this function of money and explain its inclusion in the utility function (see for example, Walsh, 1998).

[47] On a market with 100 commodities the trader would have to know (acquire through an expensive search) 4950 relative prices, whereas money reduces the number of prices on the market to 100.

[48] The freezing of bank accounts in Argentina during 2002 is an example of how *de facto* allocation can undermine the *de jure* allocation of property.

resulting confusion could lead to a substantial mis-allocation of resources[49,50] (Kasper and Streit, 1998). Money loses its uncertainty-reducing capacity during high inflation, as the marginal cost of holding money increases, while the marginal benefit of using money reduces (Brunner and Meltzer, 1971).

Buchanan (1975: 25) emphasised the emergences of "predatory and defensive activities" when exclusion is uncertain. Accordingly, the definition, enforcement and protection of property rights have an important impact on the incentives for productive activity. Whereas inflation does not lead to behaviour analogous to "predatory activities", there is an analogy with "defensive activities" in the form of shoe-leather costs[51]. The latter is due to the unproductive effort of individuals facing high inflation, to minimise the erosion of their wealth by inflation through a constant and frantic re-allocation of asset portfolio's, while at the same time allowing sufficient liquidity for immediate transactions[52] (Romer, D.H., 1996: 429).

Finally, governments with the monopoly power on the issuance of money, have by the same token, the power to debauch the money, to annul a currency, or (where government controls the banking sector) to confiscate existing money balances. Since the public knows this, Bordo and Schwartz (1999) included the public's expectation of future monetary policy in their definition of a monetary regime. Indeed, the history summarised in chapter 3 will show how many

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[49] Robert Lucas (1972) showed how a confusion between relative and absolute prices can have macroeconomic effects with the pattern of and the magnitude associated with business cycles.

[50] The extreme of this confusion is reached during episodes of hyperinflation. Most personal accounts of hyperinflation convey the realisation that social order is collapsing and that government's mismanagement of money is central to that collapse. One such example – from the Russian civil war in 1919 – reads: "...the high cost of living are increasing, 'not daily, but hourly'...the cause of the continuous rise in prices is, besides profiteering, the complete and fantastic inability on the part of the Government to manage its finances... obviously we are rapidly approaching a time when life in Russia without profiteering will be impossible" (Ouspensky, 1978: 40).

Keynes (1924: 220-221) also described the crippling effect on decentralised decision-making when the credibility of money has been compromised. In his words: "...all permanent relations between debtors and creditors, which form the ultimate foundation of capitalism become so utterly disordered as to be almost meaningless; and the process of wealth-getting degenerates into a gamble and a lottery... The process engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million can diagnose."

Or as Adam Smith described the effect of government's mismanagement of the money supply: "[debauching] have always proved favourable to the debtor, and ruinous to the creditor, and have sometimes produced a greater and more universal revolution in the fortunes of private persons, than could have been occasioned by a very great publick [sic] calamity" (Smith, A., 1981 [1776]: 44).

[51] The seminal contribution was by Bailey (1956).

[52] Shoe-leather costs are normally modest but become debilitating in times of financial crisis or hyper-inflation. The Argentine debt-default of 2002 was followed by the emergence of dozens of quasi-currencies as local governments (and even a shopping centre) started to issue money during the liquidity crunch (Catan, 2002). Consequently, Argentineans had to expend significant effort to acquire suitable money for their intended transactions and in learning the appropriate informal exchange rates between these.

governments have, in the post-War era, undermined the credibility of money as a store of value. During this period monetary property has not been treated with the same deference as other property rights in decentralised economies. And as Simons (1936) predicted, monetary economists have been instrumental in the abuse[53].

A two-fold connection between money and property rights has been derived here: firstly, money is an asset, and if other property rights on money lose credibility, then property rights more broadly may also be impaired[54], or as Buchanan (1993: 45) summarised the same point: "...so long as the political authority retains effective power (and it is understood to do so) to confiscate property-holdings that are denominated in monetary units of account, the legal structure that allows persons to own and control assets remains crippled; the potential efficacy of the institution of private property itself remains only half-way exploited." Secondly, money affects the efficiency with which property rights are exchanged on the market, both directly and via its effect on the general price level. Fluctuations in the value of money can have a widespread and malevolent effect on decentralised decision making[55]. Money may just be machine, but it is an indispensable machine as Milton Friedman (1968: 12) observed. Further, when money falls into disorder, the rest of the economy malfunctions too.

This section has mapped the institutional role for money in a decentralised economy. At this stage the discussion has already demonstrated two of the three positive contributions that Milton Friedman (1968) famously derived for a system of monopolised fiat money, they are: allowing the price mechanism to function by preventing money from becoming a disturbance, and secondly, allowing business to form stable expectations by maintaining the value of money

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[53] In his words: "...it may be said that economists, as students of money and banking, have accepted and propagated the first serious heresy among liberals...traditional liberalism, if not hopeless or fundamentally decadent for other reasons, is at least seriously embarrassed by the difficulty of answering urgent monetary questions in a manner consistent with its central tenets" (Simons, 1936: 3-4).

[54] Alan Greenspan (1966: 101) concluded his defence of an extremely rigid discipline on monetary policy (in the form of the gold standard) with the argument that a disciplined monetary policy regime (the gold standard in his case) "...stands as a protector of property rights." And Adam Smith was no more equivocal in connecting the money supply with the protection of property rights when he argued that inflationary policies "*defrauded* [creditors] of a part of what was due to them" (Smith, A., 1981 [1776]: 44, my emphasis).

[55] Whereas inflation has, historically, been the concern, the dangers of deflation are symmetrical. This issue is elaborated on in the discussion of symmetrical targets for monetary policy in chapter 5.

credibly[56], so supporting the credibility of other property rights in the economy. A third positive contribution for monetary policy, the ability to counteract large disturbances[57], is discussed in chapter 3.

Money's ability to fulfil this central institutional role in a decentralised economy is, in turn, affected by a second layer of institutions that influence the extent to which money can fulfil its primary institutional role. These institutions of a monetary policy regime, for example the independence of the central bank, the specification of policy objectives and the composition and tenure of the policy making committee are central to the institutional evaluation of inflation targeting in this dissertation.

## 1.4 THE EMPIRICAL IMPORTANCE OF INSTITUTIONAL ECONOMICS

Whereas the logic of the New Institutional Economics is non-controversial, the empirical relevance of the analysis has to be established. The same is true of the extension of the institutional analysis to the monetary regime. Empirical relevance is important here as it would increase the force of the argument for economists and other social scientists that lack the intuitive commitment to liberalism of, say, Hayek. Indeed, the practical importance of the theory has often been more compelling to economists than the philosophical argument (Viner, 1958 [1947]: 128). This short section discusses the evidence on this matter.

There is an extensive literature that applies institutional economics to economic history. Douglass North's contribution (for example, 1981; North, 1990) has been seminal in this field. Other important contributions have been made *inter alia* by Baumol (1990), Eggertsson (1990), Grilli, Masciandaro and Tabellini (1991a), de Long and Shleifer (1993) and Acemoglu (2003).

More recently, the empirical importance of institutions has been investigated using econometric techniques. Some of these (for example, World Bank, 2002) use simple graphical correlations

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[56] In principle, at least, there is an important difference between "price-level stability" and "price stability", since the latter usually refers to low and stable inflation - low and stable enough that decision makers no longer take inflation into account in their economic decisions (Blinder, 1997b) - and hence a continuous drift in the aggregate price level. With inflation targeting gaining prominence, an increasing number of central banks have adopted "price stability" in the second sense as a goal, but there are no contemporary "price level" targeters. Throughout this dissertation "price stability" will, therefore, be used in the second sense. However, there is nothing inevitable about this usage and central banks would very well consider adopting price-level targets in the future, as Sweden had done with success in the 1930s (Svensson, 1999a).

[57] Counteracting large disturbances does not form part of the institutional matrix of the economy, though it affects the efficiency of monetary institutions. Consequently, this monetary function is considered in chapter 3 where the institutional challenges of monetary policy in a modern economy are discussed.

between various measures of "good governance" (as defined above) and different dimensions of economic performance[58]. More sophisticated econometrics was used by *inter alia* Knack and Keefer (1995), Hall and Jones (1999), Acemoglu, Johnson and Robinson (2001) and Rodrik, Subramanian and Trebbi (2002) to investigate the importance of empirical relevance of institutions in economic growth. While the evidence that institutions matter greatly for economic advancement is accumulating steadily, there are still areas of academic disagreement, for example, whether good institutions are more important than good macroeconomic policies[59].

Efficient institutions improve the predictability of social interaction and, accordingly, it is not surprising that empirical studies have found a link between efficient institutions and the stability of economic growth. In his recent summary of the relevant empirical literature Edison (Edison, 2003) concluded that good institutions not only raises the trajectory of economic growth, but also lowers the volatility of that growth. What is more, institutions provide a vehicle for long term commitments throughout society, and such long term commitments are required to encourage projects that improve the long term sustainability of development including, for example, environmental protection (Eigen-Zucchi, Eskeland and Shalizi, 2003).

There is a separate literature that examines the impact of monetary institutions on the performance of the economy, which addresses two distinct issues: firstly, considering the impact of inflation on economic performance, and secondly, the reasons why central bankers are increasingly focussing on low inflation as the main goal of monetary policy. The second question is dealt with in chapter 3, while the first is considered here.

There are both economic and social costs to inflation. The social costs refer to the differential impact of inflation on the rich and the poor. The poor are especially vulnerable to the harmful effects of inflation, not only indirectly through the adverse impact on growth and investment, but also directly through the erosion of non-indexed incomes and nominal assets[60]. In an

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[58] A typical example is the strong positive correlation between the number of procedures required for registering a new business and an index measuring corruption in the same economy (World Bank, 2002: 13).

[59] These disagreements need not paralyse policymakers though as good policies and good governance (in the institutional sense) is often mutually re-enforcing. In his recent summary of the empirical evidence on institution, polices and growth Edison concluded that "...the correlation between institutions and policies points to the fact that sound policies need to be supported and sustained by good institutions, while weak institutions may reduce the chance that good policies will be adopted or may undermine policy ineffectiveness" (Edison, 2003: 37).

[60] Bhorat and Oosthuizen (2002) have recently investigated the impact of inflation on the poor in South Africa by constructing different inflation indices for different sections of the population. This is a controversial methodology, as it moves away from the concept of inflation as eroding the purchasing power of money (i.e. the inverse of the general price level) in contrast with relative price rises.

economy with comprehensive and free financial markets, inflation would leave the real value of wealth and income unaffected. However, the poor often lack access to the financial instruments needed for hedging against inflation (see for example, Collier and Gunning, 1999 on the access of poor African households to financial instruments). Consequently, the poor are unable to hedge and episodes of inflation lead to a more unequal distribution of wealth and income (World Bank, 2002).

Easterly and Fischer (2000) have recently studied the differential impact of inflation on the rich and the poor with a survey from 38 countries. Their results indicate that inflation reduces the relative income of the poor, and that the poor is more likely than the rich to mention inflation as an economic concern. Easterly and Fischer's (2000) results confirmed those of Romer and Romer (1998). The Romers distinguished between the short and long run effects of inflation, which is informative given the different impact of monetary policy on output and employment in the short and long run (see chapter 3). Their results indicate that easy monetary policy only appears beneficial to the poor in the short run – as a temporary upswing in activity is encouraged – but that the debilitating long run effect of inflation on the poor outweighs the short run benefit. They concluded that "...compassionate monetary policy is, most likely, simply sound monetary policy" (Romer, C.D. and Romer, 1998 4).

The economic costs of inflation usually refer to the various distortions of the price system caused by inflation[61] (Fischer, 1998; Mishkin, 2000c). These economic costs include the shoe-leather costs mentioned above, menu costs, distortions to the tax system, disruptions to the creditor-debtor relations and distortions in savings plans (Romer, D.H., 1996). In an influential paper Stanley Fischer (1993) presented evidence, using panel data, on the negative impact of inflation on economic growth. Fischer (1998) updated and confirmed the earlier results. Meanwhile, Feldstein's (1996) calculations suggested that the negative impact of inflation on economic growth could be very significant indeed[62].

However, there are still open questions in this literature: for example the degree to which the relationship between inflation and growth is non-linear, and the shape of that non-linearity. Fischer (1993), for example, found evidence of a non-linearity in the relationship with the

[61] Fischer (1983) notes that these distortions only follow from unexpected inflation. In this sense, highly variable and, hence, less predictable inflation is more harmful than steady inflation. Indeed, an important argument for committing monetary authorities to a rule is that this will make inflation more predictable and in that way, less costly.

[62] Feldstein (1996) suggested that even a 2% inflation rate could have a welfare cost of 1% of GDP per annum as compared with zero inflation.

implication that disinflation is increasingly growth enhancing at lower rates of inflation. His results were, however, challenged by Sarel (1996) on at least one point, that is the shape of the non-linearity. In Sarel's (1996) econometric inference the growth debilitating effect of inflation is stronger at higher rates of inflation (above 8% per annum on his reckoning) than at lower rates. There is as yet no consensus on these results, and it is an important line of research given the implication for the level of inflation which a central bank ought to aim for, and the pace at which the disinflation should occur.

Finally, it is not only through inflation that money has a potentially deleterious effect on decentralised decision making. Sharp contractions in the money supply have, historically, been associated with severe recessions, especially the Great Depression, which Milton Friedman has, for this reason, called the Great Contraction (Friedman, M. and Schwartz, 1963). These monetary disruptions of decentralised economies used to be so severe that Marx and Engels allocated to them a central role in the causal chain of events that would have caused the workers' revolution (Marx and Engels, 1948). Stable monetary policy can do much to prevent money from causing similar macroeconomic disruptions (Buchanan, 1993; Friedman, M., 1968).

In summary, there is both econometric and historical evidence that institutions matter for the economic advancement of societies. Further, the monetary policy regime is amongst the institutions that lower transaction costs when functioning well, but impedes economic growth when monetary policy fails to secure low inflation. Indeed, the double-edged nature of money – beneficent when functioning well and malevolent when inflationary – is typical of many institutions and follows from the paradox of power discussed in the next section.

## 1.5 THE PARADOX OF POWER

A paradox of institutional economics is that the government's comparative advantage in violence, which allows it to define and enforce institutions (say property rights) in the first place, also grants sufficient power to government to threaten the persistence of those institutions (Weimer, 1997: 7-8). This paradox is expressed graphically by the negative slope of the institutional possibility frontier in figure A.1.

In this situation, a government powerful enough to enforce a monopoly on the issuance of money also has the power to debauch the money, to annul a currency, or to confiscate existing

money balances. Anticipating, what would indeed happen, Henry Simons (1936) argued - in the period shortly following the establishment of powerful monetary authorities - that these central banks posed a "great intellectual threat" to the liberal order.

The paradox of power, according to which a strong government can both protect and jeopardise property rights, is a central concern of political economy, and raises the issue of institutional credibility. Preserving decentralised decision making in a democracy, therefore, requires the explicit recognition that the democratic process should decide collective decisions, given the scope of government, but must not determine the scope of government (Hayek, 1960: 106-107). James Madison, for example, captured this balance eloquently when he reasoned that:

> "...in framing a government to be administered by men over men, the great difficulty lies in this; you must first enable the government to control the governed; and in the next place oblige it to control itself" (World Bank, 2002: 99).

Failing the establishment of such boundaries for government, the credibility of both property rights and money is brought into doubt[63]. And both need to be protected, since unchecked authority for government with respect to money will - as argued above - undermine broader property rights, too.

It is the untangling of the above mentioned paradox Hayek (1976: 2) argued that "...the most important of the public goods for which government is required is thus not the direct satisfaction

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[63] The claim is not that government alone possesses power in society. Indeed, the power of business, especially of large corporations is evident in modern economies, as has been emphasised especially by John Kenneth Galbraith (see for example, 1967; 1977). Nor is Galbraith alone in warning against the potentially harmful power of business organisation (see for example, Hayek, 1979; Raz, 1986). However, both Galbraith and Hayek emphasise that this danger lies mainly in the influence that business may gain over government, sponsoring legislation for the particular benefit of the corporation or sector, like tariffs, concessions and so on (see, for example the economic theory of regulation in Stigler, 1971). In this sense, though economic power is real and vast, political power remains primary (Popper, 1966b: 128). Indeed, the history of labour legislation in this country demonstrates the harmful effect of business influence on legislative power. Greenspan (1961: 65) argued the same point with reference to the railway barons of the late 19th century America. In his words: "They [the railroad barons] could, and did, behave with an aura of arbitrary power. But that power was not derived from a free market. It stemmed from governmental subsidies and governmental restrictions."

It is important to note that size, though it may increase bargaining power, is not a necessary requirement for influence over government. Small, well-connected, businesses could also influence policy. Nor is this kind of malevolent influence particular to the business sector, but extends, rather to all pressure groups, including organised labour and non-governmental organisations. Consequently, Wagner (1993), and others, have argued that the democratic process creates incentives for a drift towards mercantilism, not for the maintenance of a decentralised market. Establishing boundaries for government (narrowly defined) includes limiting the power of all particular groups acting through government to counteract the mercantilist drift (see Scheuerman (1994) for a similar argument).

A second reason for focussing on government, as opposed to corporate power, in this formulation of the paradox of power is that there is no legitimate interest for government other than the pursuit of the interests of its subjects. In contrast, corporations do have a legitimate interest of their own (Raz, 1986). However, where the goals of a corporation undermine social goals, the peaceful pursuit of those goals may become impossible, and in a democratic dispensation, even loose legitimacy.

of any particular needs, but the securing of conditions in which individuals and smaller groups will have favourable opportunities of mutually providing for their respective needs." Amongst these favourable conditions are credible property rights and credible money. Indeed, the scope of government in facilitating decentralised decision-making is determined by the requirements (often summarised in a 'constitution', following the American example) of credible institutions in the face of popular pressure to pursue particular ends[64]. This is not to deny the other important roles of government, for example in the progressive realisation of economic and social rights which have been included amongst the responsibilities of government in the South African constitution (Republic of South Africa, 1996).

A number of commitment mechanisms are available to establish the credibility of formal institutions, like property rights. The basic idea is to create countervailing institutions that raise the cost for government of undermining institutions like property rights and money[65], for example: the separation of powers in government, federalism and, hence, competition amongst different entities in government, and constitutionalism (Weimer, 1997). It is the combination of these institutions that locates a society on its institutional possibility frontier. Considering commitment mechanisms for money, Buchanan (1989 [1962]: 147) argued that only a "constitutional attitude"[66] could give credibility to the government's commitment to prudent monetary policy.

Adopting a "constitutional attitude" in the attempt to give credibility to property rights or to the monetary system, is the same as committing to what Hayek (1960) called the "rule of law". The rule of law prevents, or at least greatly hinders, the exercise of arbitrary power by the state which would undermine the credibility of many formal institutions, including money. The next chapter considers how the "rule of law" can untangle the paradox of power, with a focus on monetary policy.

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[64] Indeed Acton (2000) described the writing of a constitution as "every effort" and "every scheme" to "curb the inevitable democracy."

[65] In this important political consideration the question "who should rule" is replaced by the question "how can we tame them?" (Popper, 1966b 133)

[66] For Buchanan (1989 [1962]) such a constitutional attitude means "people must agree on the basic rules that define the operation of a monetary system and then agree to abide by these rules as adopted".

# CHAPTER 2 THE RULE OF LAW

The infamous trial of Joseph K. starts with his unexplained and inexplicable arrest one fine morning; and the only consolation for the astonished K. was the assurance that things could not be as arbitrary as they appeared, for the very fact of his arrest indicated his probable guilt[67]. K.'s subsequent protestations left his captors unmoved as they repeated their fateful argument: "... [K] admits that he doesn't know the Law and yet he claims to be innocent." In the novel, as in life, it is the dread of power arbitrarily exercised that has long provided the moral force behind the rule of law. This metaphysical horror is of secondary importance in this dissertation, though; what matters here is the irreducible uncertainty caused by arbitrary authority over money, as elsewhere.

Kafka's novel demonstrates a crucial distinction in political economy between two questions, they are: Firstly, the question of authority, or "who should rule?" Secondly, the question of the extent of the state, or "how can we so organise political institutions that bad or incompetent rulers can be prevented from doing too much damage?" (see for example Popper, 1966a: 121). The horror of K.'s trial lies not in the existence of authority, the doubtful legitimacy of the authorities or even its facelessness, but in the scope of that authority; his trial enacts the question of the proper scope for the state. And it is this question which creates the paradox of power in policy analysis. Accordingly, it is a question of first order where the design of a monetary policy regime is concerned. In this chapter the liberal solution to the paradox of power, i.e. the rule of law, is considered and its implications drawn for the monetary policy regime.

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[67] In the frightful jurisdiction where K lives "...one did not know in general, or at least did not know with any precision, what charges to meet in the first plea; accordingly it could be only by pure chance that it contained really relevant matter. One could draw up genuinely effective and convincing pleas only later on, when the separate charges and the evidence on which they were based emerged more definitely or could be guessed at from the interrogations. In such circumstances the Defence was naturally in a very ticklish position...for the proceedings were not only kept secret from the general public, but from the accused as well" (Kafka, 1999 [1935]: 128-129).

## 2.1 RESTATEMENT OF THE PROBLEM

The paradox of power arises from the joint goals of freedom and order[68]. In modern history, the complex bargain between liberty and government[69] was most strikingly displayed by the French revolution. The turmoil in France stumbled from absolutism to anarchy and back along the institutional possibility frontier, and it was long before a tolerable balance secured both freedom and order. Of the contemporary commentators, few commented as perceptively as Edmund Burke on the French attempts at marrying order and freedom. Burke famously (1937 [1790]: 376) wrote: "To make a government requires no great prudence. Settle the seat of power; teach obedience and the work is done. To give freedom is still more easy. It is not necessary to guide; it only requires to let go the rein. But to form a free government; that is, to temper together these opposite elements of liberty and restraint in one consistent work, requires much thought, deep reflection, a sagacious, powerful, and combining mind."

The origin of the paradox is the observation that the state is a necessary institution that reduces the cost of interaction in a society where individuals have different and often conflicting ends (and where every individual is to be respected in his individual or collective pursuits) while the state does not only potentially threaten, but has historically undermined the co-ordinating institutions. Douglass North (1984: 13) summarised this paradoxical situation: "The state is an essential prerequisite for capturing the gains from trade, but is also the source of exploitation...if the state is the necessary prerequisite for economic growth, it is also the source of man-made economic decline."

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[68] "Order" neither implies a static society, nor perfect information here. Rather, it means a society where the local knowledge of different decision makers overlap and interact, allowing them to form expectations about the whole which are not systematically and persistently incorrect. Any functional society has this kind of order, to some extent. For Hayek (1973: 36) "...this matching of the intentions and expectations that determine the actions of different individuals is the form in which order manifests itself in social life." Order does not increase the reliability of expectations by determining concrete ends, but by providing a structure against which individuals can form reliable expectations given their local knowledge.

Since this kind of order arises spontaneously it cannot be said to have a purpose, though it is instrumental in the various pursuits of all in society. This is not a Panglossian description of social order, nor does it deny that collective action can change the order. Changing some of the rules of social interaction will certainly affect the outcome. However, the highly non-linear character of a complex system (such as spontaneous social order) means that the social planner will not usually, or even ever, be able to predict all the effects of changes to the rules. At best the general impact could be predicted, but the details will be discovered only later (Popper, 1961); or as Hayek (1973: 51) argued: "...we can preserve an order of such complexity not by the method of directing members, but only indirectly by enforcing and improving the rules conducive to the formation of a spontaneous order."

[69] Indeed, Wagner (1993: 1-2) calls it a "Faustian bargain" which "...countenanced the use of an instrument of evil in human affairs – force over other people – for the sake of the good that the wise and judicious use of that instrument could accomplish. It was fully recognised that evil too would arise, in the form of encroachments on liberty."

A "negative" conception of liberty[70] is implicit in the formulation of the paradox of power given here. Whereas the positive conception of liberty is an attempt to answer Berlin's (1998 [1958] 194) question: "What, or who, is the source of control or interference that can determine someone to do, or be, this rather than that?", the negative conception of liberty answers a different question[71], i.e. in Berlin's (1998 [1958]: 194) words: "What is the area within which the subject - a person or group of persons – is or should be left to do or be what he is able to do or be, without interference by other persons?"

Berlin's distinction mirrors Popper's (1966a) contrast between the questions "who should rule?" and "how can we tame the rulers?" For Popper, this meant that the question of authority is one of political method, and is a component of the institutional matrix (together with, for example, criminal law and so on) that allows peaceful co-existence despite divergent interests and opinions. Democracy is one answer to the question of authority. In contrast, the second question investigates how to prevent this institution of democracy, along with other formal institutions backed by the state, from undermining the decentralised system it was intended to serve[72]. From this perspective the second question is primary, as it defines the role for, and sets the limits of, democracy[73,74] (Pejovich, 2001).

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[70] As contrasted with "positive" liberty by Berlin (1998 [1958]).

[71] It is "a shallow and unanswerable question" to ask which of the positive or negative conceptions of liberty are true, argues Berlin elsewhere (Berlin, 2003: 73). These two notions encapsulate two different world views and he bemoans the fact the "the word 'freedom' has been a genuinely central symbol in both [as] ...at once remarkable and sinister."

[72] In answering this question Popper (1966a) also defines his understanding of democracy as "...the proposal to create, develop, and protect, political institutions for the avoidance of tyranny" or as he summarised it elsewhere: "For the key point of democracy is the avoidance of dictatorship... It is also true, of course, that in democracy everybody is equal before the law, nobody is a criminal who has not been proved a criminal, and so on. All these principles are part of the rule of law, so that democracy may be said to be a way of preserving the rule of law" (Popper, 1997: 43-44).

This gives Popper a theory of democracy which he traces to ancient precedents and is consistent with the common understanding of democracy as a method for deciding collective decisions, based on equal participation by the constituency. Such an institution is, of course, one of the most powerful mechanisms for checking tyranny (Dietze, 1979). Still, it is not an irresistible force against authority especially when combined with what Popper (1966a) calls the theory of "unchecked sovereignty", i.e. the theory that whatever decisions are carried by democratic vote is, by the same fact, the right decision. Lord Acton traced this last doctrine to Rousseau and mapped its course through the French Revolution; in Acton's (2000: 14) words: "Rousseau's most advanced point was the doctrine that the people are infallible. Jurieu has taught that they can do no wrong: Rousseau added that they were positively in the right." Form the same reason Berlin (2003: 49) placed Rousseau amongst the "...most sinister and most formidable enemies of liberty in the whole history of modern thought." Contra Rousseau, Popper denies any place for the principle that the majority is always right; in his words: "...it is not a principle of democracy that the majority is always right; the majority can make the greatest mistakes; it can even vote to introduce a tyranny..." (Popper, 1997: 44).

[73] Popper (1966a) agreed with Pejovich (2001) that once the possibility of poor government is admitted then the precedence in political philosophy shifts away from the question of "who should rule" and to the question of "how to tame them." For Popper (1966a) it seemed like "...madness to base our political efforts upon the faint hope that we shall be successful in obtaining excellent, or even competent, rulers."

[74] Likewise, harmonising a monetary policy regime with the system of decentralised decision making takes precedence over harmonising it with the method of democratic elections. Chapter 9, below, elaborates on this idea in an argument challenging the literature's preoccupation with the 'democratic deficit' of independent central banks while neglecting the paradox of power.

This second question of Berlin and Popper presupposes both the potential conflict when people interact socially[75], as well as the value-judgement that people should nevertheless be allowed to pursue their dissimilar ends. With these underlying premises, the challenge for society is to find ways of reducing the cost of interaction, without resorting to paternalism, or worse. Planning has, since Plato, impressed social scientists as an obvious solution (this is the thesis in Popper, 1966a). However, even before the theorems of Arrow (1950) and Sen (1970), economists have argued that comprehensive collective management of the economy would not only be counterproductive, but also illiberal[76].

In the third fundamental theorem of welfare economics Kenneth Arrow (1950) demonstrated that only a dictator could form a rational social preference from individual preferences[77] (if interpersonal comparisons of utility were disallowed). Sen's (1970) subsequent result was stronger still; substituting Pareto optimality for rationality. Accordingly, Pareto optimality can be "deeply illiberal" and its use in welfare economics is unacceptable if illiberal results are

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[75] Even liberal economists, like Keynes, have not always held to this vision of society. Indeed, Keynes criticised Hayek's *Road to Serfdom* for seeking a *solution* for the problem of divergent ends and individual sovereignty. In that book, Hayek (1944 [1971]) argued that the Rule of Law is required to check collective economic planning which risked undermining the system of decentralised decision making. Keynes wrote to Hayek to congratulate him on the book and to share his agreement with much of the analysis (see the letter in Harrod's (1972 [1951]) biography of Keynes). Yet, from the same premises Keynes concluded more or less the opposite, i.e. "...what we want is not no planning, or even less planning, indeed I should say that we almost certainly want more planning." The disagreement was caused by Keynes rejecting the assumption of divergent ends: his argument was that the latter would be addressed by restoring "right moral thinking", since "dangerous acts can be done safely in a community which thinks and feels rightly, which would be the way to hell if they were executed by those who think and feel wrongly." If harmonised morally, then society would be in a position to enjoy the "fruits" of planning, as Keynes called it. Contra Keynes, Hayek (1973: 72) has - with respect to the coercive power of government - insisted that, "...it will certainly remain an exceedingly dangerous power so long as we believe that it will do harm only if wielded by bad men."

Like Keynes, the Physiocrats attributed the problems of their time to a general misunderstanding of the natural law of society. Hence the problem of social policy became, as Lord Acton (2000: 10) summarised it, "...to enlighten the ruler, not to restrain him; and one man is more easily enlightened than many."

Whether this combination of moral alignment and planning leads by necessity to Huxley's (2001 [1932]) *Brave new world* is the topic for a different dissertation. It is sufficient to note here that mainstream economists have, in the tradition of the Scottish enlightenment, rarely abandoned the assumption of divergent ends, or accepted the task of moral tutoring (Stigler, 1982). On the contrary, one of the main contributions of economics is the demonstration that order is possible, despite the divergent ends, and despite the rejection of paternalism or autocracy, but with the emphasis that this result obtains spontaneously only in decentralised societies (Hayek, 1989 [1974]). Jacob Viner (1958 [1940]: 128) argued along similar lines to conclude that the intellectual force of economics has long been the demonstration that decentralisation could "...make a good society out of men who were very, very far from being capable of sanctification. It brought about economic co-operation even without the will to co-operate and without much formal organisation for co-operation."

[76] Hayek's (1944 [1971]) *Road to Serfdom* is a prominent example, but others, for example Frank Knight (1944 [1947]) have argued similarly.

[77] The first fundamental theorem of welfare economics states (stated informally) that the outcome of a competitive decentralised system is Pareto efficient. The second fundamental theorem of welfare economics concerns distribution and says (stated informally) that lump sum taxes can switch a competitive system from one Pareto optimal equilibrium to almost any other Pareto optimal equilibrium. Finally, the third welfare theorem proves (again, stated informally) the non-existence of an Arrow social welfare function satisfying a set of minimum conditions such as: universality, Pareto consistency, neutrality, independence, and (importantly) non-dictatorship (Feldman, 1987).

disallowed. In this way, welfare economics threatens liberal society[78]. Whereas the normative argument against planning turns on this illiberal implication, the positive argument rests on the epistemological limitations of planners and the efficacy of decentralised decision making (Hayek, 1989 [1974]). The liberal solution to both the normative and positive concerns is to define and protect a sphere of personal influence for each person, and the insistence that the rule of law is the instrument which guides both the state and society in the maintenance thereof.

This concern with negative liberty (and a sphere of personal control) shifts the interest of political philosophy away from considerations of the source of authority and emphasises the institutions that defines and upholds that sphere of control. As Berlin (1998 [1958]: 202) noted, negative freedom is not "...at any rate logically, connected with democracy or self government...the answer to the question 'Who governs me?' is logically distinct from the question 'How far does government interfere with me?'"[79] At least historically, though, democratically legitimate government have tended to be a safeguard against tyranny. But that trend is not without important and tragic exceptions (Popper, 1997).

It is the Scottish enlightenment that forms the intellectual backdrop for the view of society in which the protection of negative liberty requires a solution to the paradox of power. In the second half of the eighteenth century a gallery of extraordinary Scotsman (including Adam Smith, David Hume, Adam Ferguson, Thomas Reid, Sir James Steuart and John Millar) built on the earlier considerations (especially by Thomas Hobbes, Hugo Grotius and Samuel Pufendorf) of social order amongst epistemologically limited people with conflicting ends (Robertson, 1987). In this tradition the state is postulated as another institution that facilitates order, by securing the rights of individuals in their social interaction. Government secures the rights, but is not the source of the rights (Wagner, 1993).

It is the joint assumptions of conflicting ends and a modest view of people's epistemological capacity, combined with the subsequent concern with institutional mechanisms underlying social order that most clearly sets the Scottish enlightenment apart from the (often utopian)

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[78] Knight (1950: 513) captures the formal results of Arrow and Sen with this warning: "...especially state action, which aims at and sometimes does good in one direction, but too often without counting the greater cost in other values fully as essential. Like Aesop's dog, we may well lose the meat we have by grasping at things beyond reach, or entirely unreal."

[79] It is argued below that this distinction is of some importance in monetary economics, too. As is argued in chapter 9, the literature's solution to the 'democratic deficit' addresses the question of authority, not the question of the limit to government's authority. If Pejovich (2001) is correct that the latter question is primary, then it is important for monetary economists to consider how monetary policy regimes can be made consistent with liberal principles first, before matching it with democracy.

contemporary continental intellectuals, especially in the provinces of France and Italy[80] (Robertson, 1987).

Social scientists are not in substantive disagreement on the importance of planning, as such, in social order. The important issue is the boundary between collective planning (both politically and in voluntary associations) and individual planning. The liberal view, drawing on the Scottish Enlightenment and expanded by the subsequent institutional analysis of mainstream economics, emphasises the importance of checking the positive functions of government, in an attempt to protect the negative freedom which is essential for the spontaneous order of decentralised decision making.

In this way, the underlying vision of the Scottish Enlightenment contributed much to the development of contractarian solutions to the political challenges facing Europe - when the era of absolute monarchs was drawing to a close - and the American colonies, when they rejected the absolutism of a parliament in which they shared no part. It is this contractarian view of political institutions that underlies what Lord Acton called:

> " [the] American notion that the end of government is liberty, not happiness, or prosperity, or power, or the preservation of historic inheritance, or the adaptation of national law to national character, or the progress of enlightenment and the promotion of virtue; that the private individual should not feel the pressure of public authority, and should direct his life by the influences that are within him, not around him" (Acton, 2000: 28).

Liberty, as understood by the contractarian political philosophers is a "constituted liberty."[81] Order is a prerequisite for liberty in this view, and the law (protected by a constitution) the basis

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[80] On these two origins for liberalism, one British and one French, see Acton (1909 [1862]).

[81] The Final Constitution of the Republic of South Africa summarises the values of this society as:

1. "Human dignity, the achievement of equality and the advancement of human rights and freedoms.
2. Non-racialism and non-sexism.
3. Supremacy of the constitution and the rule of law.
4. Universal adult suffrage, a national common voters roll, regular elections and a multi-party system of democratic government, to ensure accountability, responsiveness and openness" (Republic of South Africa, 1996).

These values are consistent with the constituted liberty found under the rule of law, and the notion that the "end of government is liberty," even if the content of "equality", "human rights" and "freedoms" will remain contested ground.

of that order[82]. Dietze (1979: 80-81) captured the interplay between liberty, order and the law by observing that: "while freedom is the great ideal that hovers over the legal order and always prompts that order to become more free, the legal order is the realisation, if only partial, of the ideal...the genuine liberal realises that it is reasonable to accept the authority of the state, while always being wary of its powers."

The separation of powers (of the executive and legislative powers and the judiciary) is a fundamental component of the contractarian vision (Acton, 1909 [1877]). Such a separation has become one of the supportive institutions of a liberal, or decentralised, society; democracy is another. As the late 18th century American judge Wythe argued memorably against the Virginian legislature: potential tyranny is thwarted and liberty extended when "...those who hold the purse and the sword differing as to the powers which each may exercise, the tribunals, who hold neither, are called upon to declare the law impartially between them" (Quoted in Acton, 2000: 30).

In the liberal view of society there is, consequently, an important distinction between two levels of political action: the constitutional level (where formal rules are constructed politically) and the level of in-period politics (where ends are pursued, given the institutional framework) (Hardin, 2001; and Wagner, 1993). Normative economics is usually understood to involve the comparison of various actions or policies where the respective end-states are evaluated (Buchanan, 1987). However, the third fundamental theorem of welfare economics undermined this project by demonstrating that the requisite welfare function does not exist, at least not in a liberal society[83]. By extension, this theorem undermined the theoretical foundations for normative policy analysis at the level of in-period politics.

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[82] This idea of a constituted liberty has an ancient precedent, as expressed for example by Cicero where he argued that "we are the servants of the law, so that we can be free" (quoted in Kasper and Streit, 1998). It is also present in all of Hayek's political tracts, including the *Road to serfdom*, *The constitution of liberty* and *Law legislation and liberty*.

[83] Arrow and Sen formalised what Graaff intuited in the *locus classicus* of welfare economic, where he concluded that "...it does not seem to be realised how *detailed* the agreement on ends must be if a consistent theory of welfare economics is to be erected... it seems to me extremely improbable that agreement on these basic matters will ever be obtained. And it seems to me, therefore, that the possibility of building a useful and interesting theory of welfare economics... is exceedingly small." (Graaff, 1957: 168-169, emphasis in the original)

Wicksell had discovered these problems even earlier, but the relevant paper was only translated from the German by James Buchanan in 1958. In his paper on a *New Principle of Just Taxation* Wicksell argues as follows: "It may be true that it is often very difficult for the individual to judge to what extent a proposed expansion of a certain state operation ... would provide him or those whose interests concern him most closely, with benefits corresponding to the sacrifice of having to pay a given amount of new taxes...If the individual is unable to form an even approximately definite judgement on this point, it is *a fortiori* impossible for anyone, even if he be a statesmen of genius, to weight the whole community's utility and sacrifice against each other." (Wicksell, 1958 [1896]: 79)

Happily, the situation is less discouraging at the level of constitutional politics, where normative analysis requires an evaluation of alternative rules. Just as with welfare economics the challenge is to find a criterion that would satisfy both the requirements of decentralised (i.e. liberal) decision making and efficiency[84] (Buchanan, 1987; Hardin, 2001). Whereas such a criterion cannot be found for welfare economics (and in-period politics), it does exist for normative choices between rules, and hence for policy analysis and politics at the constitutional level[85]. James Buchanan (for example: Buchanan, 1989) has shown how Wicksell's "unanimity and voluntary consent" principle (Wicksell, 1958 [1896]: 95) can be turned into a criterion for evaluating policy at the constitutional level.

Buchanan combined the criteria of Pareto and Wicksell to give the relevant criterion for evaluating alternative rules at the constitutional level. On Buchanan's test an existing institutional argument is optimal in the Pareto-Wicksell sense if all the members of society, by their individual reckoning, are unwilling to substitute any proposed alternative institutional arrangement for the existing institutions (Buchanan, 1986: 270). Such a comparison must, by necessity, occur at a higher level of abstraction from the usual attempts at normative analysis where the institutional restrictions are taken as given. The Wicksell-Pareto test introduces a level of uncertainty – or a veil of ignorance as Rawls (1971) called it in his *Theory of Justice* - in every person's deliberations as she cannot discount how the application of the rule will affect her in every contingency.

This veil of ignorance bridges the gap between a person's evaluation of her self-interest and her consent to rules that restrict behaviour in society more generally[86]. Behind the veil she recognises that the rules must be general in order to apply with justice in the unforeseeable contingencies that society will face heretofore onwards; additionally, that is the only route to protect her own interest in these contingencies[87]. And she will participate in this process, only if others participate on the same terms; or as Buchanan and Congleton described the deliberations: "...each

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[84] Or as Wagner (1993: 37) argues rightly: "constitutional political economy is generally presented as an effort to articulate a place for reflection and choice, once the presumption of benevolent despotism has been vanquished."

[85] Since the sixties, economists have gradually returned to the analysis of constitutional economics, with the sub-field of "constitutional economics" lately gaining recognition. Constitutional economics concerns the analysis of the rules and limits at the constitutional level, which form the backdrop to the in-period economic and political decisions (Buchanan, 1987). The rule of law is established at this constitutional level, and therefore, falls within the ambit of constitutional economics.

[86] Unlike the case with welfare economics, there is no conflict between the subjective judgements, Pareto optimality and liberalism at the constitutional level (Buchanan, 1987).

[87] For Buchanan (1986: 272-273) the difference between the two cases originates in the "...relatively greater uncertainty about individual's positions under the operations of alternative rules... because of this relative uncertainty, the individual will be led to evaluate alternative sets of rules in accordance with a somewhat more inclusive sense of his own interest than that which might inform his simple choice among well identified end-states."

participant will also recognise that others will agree to impose constraints on their own behaviour only as part of a reciprocal 'exchange'" (Buchanan and Congleton, 1998: 6). Such a reciprocal agreement satisfies the requirements of unanimous agreement that was so fundamental to Graaff's (1957) evaluation of welfare economics; and the lack of which has led to so much agnosticism in welfare economics.

The Pareto-Wicksell criterion allows a normative judgement of the monetary policy regime, too, and will be applied in an institutional evaluation of inflation targeting in chapter 9.

## 2.2 THE NATURE OF THE RULE OF LAW

The rule of law is a central part of any political discussion at the constitutional level. Adopting what Buchanan (1989 [1962]) calls a "constitutional attitude" in the attempt to give credibility to property rights or to the monetary system, is the same as a commitment to what (Hayek, 1960) called the "rule of law". The rule of law prevents, or at least greatly hinders, the exercise of arbitrary power by the state which would undermine the credibility of many formal institutions, including money[88]. But this constitutional attitude, or the rule of law, allows significant degrees of freedom, and it is the task of politics at the constitutional level to find an efficient law along the institutional possibility frontier, given the institutional matrix in society[89](Hayek, 1973).

Whereas there is no one definition of the rule of law, the central concept conceives of a set of rules (the law) that are abstract (general and impersonal), proscriptive, known and non-discriminatory (the classic text is Dicey, 1920). Joseph Raz (1979: 5) rejects a very broad – and potentially empty - understanding of the rule of law according to which, " [the rule of law] means that people should obey the law and be ruled by it" in favour of a narrower sense with more far reaching implications, according to which "[the rule of law means] that the government shall be ruled by the law and subject to it." The latter is the sense in which 'rule of law' is used here, too.

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[88] North (1991) mentions the logical possibility that government could establish credible institutions by simple exercise of "forbearance", but adds that historically, this solution has not often been successful, and that it has more often been necessary to check the ruler's power in order to ensure the credibility of formal institutions. He supports this thesis with the historical example of how the successful limiting of arbitrary behaviour by the Dutch government and the development of impersonal rules were instrumental in the development of financial institutions and capital markets which propelled the Netherlands to its early modern economic ascendancy. Limiting arbitrary government and impersonal rules are two central features of the rule of law, as discussed below.

[89] Hayek (1960 206) insisted that "the rule of law is therefore not a rule of the law, but a rule concerning what the law ought to be..."

If political theory is dominated by the question of authority, then the actions of a legitimate government must, by that fact, be the rule of law. However, if the question of 'taming the government' dominates, then the rule of law acquires a non-tautological character, as long as 'law' means "general, open and relatively stable law' (Raz, 1979: 6). Such a set of laws limits the possible interference of that state with decentralised decisions proscriptively and contributes to more predictable social interaction, both by lowering transaction costs (for example by enforcing contracts) and indirectly by preventing the state from undermining social interaction through coercion or fraud[90]. In South Africa, for example, the government is limited by the Final Constitution and by the rule of law (Republic of South Africa, 1996: preamble).

The rule of law renders behaviour more predictable, since, as Popper explained: "...the legal framework can be known and understood by the individual citizen; and it should be designed to be understandable. Its functioning is predictable. It introduces a factor of certainty and security into social life..." (Popper, 1966b: 132-133). The law can only achieve this if the law is such that people can guide their actions by the parameters of the law (Hayek, 1973; Raz, 1979). The rule of law is evidently a question of degree. In figure A.1, for example, the rule of law helps to determine the location of society on the institutional probability frontier (Djankov, et al., 2003). In other words, the rule of law reflects the balance that every society strikes between the costs of disorder and dictatorship. Nevertheless, whatever the balance, it is achieved by limiting government to protect private property (specifically) and a private sphere of influence (more generally) (Acemoglu, 2003).

Evidently, this rule of law is the necessary requirement of liberty for decentralised decision-making (Hayek, 1960). There is no conception of a *laissez faire* government under the rule of law. On the contrary, government has many essential functions in a decentralised system, including, in the modern economy, the management of government's monopoly right on the issuance of money. But liberty does require that government's economic participation be consistent with the rule of law, and liberty does proscribe certain actions (for example, the arbitrary infringement of property rights presently happening in Argentina and Zimbabwe) as beyond the scope of legitimate government activity. The rule of law is, as it were, a test of the consistency of specific measures or policies with decentralised decision making (Hayek, 1960), a test which is applied to the monetary policy regime of inflation targeting in this dissertation.

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[90] This connection between the rule of law and the protection of liberty for the sake of decentralised decision making has long been realised. For example, Popper (1997) traces the idea to the Golden Age of the Athenian empire.

The rule of law requires the distinction between constitutional and in-period politics mentioned above. This is why, at least historically, the doctrine of the rule of law has been associated with political philosophers that also contributed to the development of a contractarian view of the state. Indeed, historically, constitutional documents (like the *Magna Carta*) often emerged from the struggle between authority and the rule of law[91]. For the constitution to defuse the conflict between authority and law, the law must predate (conceptually and usually historically) the constitution. The latter plays the part of a superstructure that protects and facilitates the enforcement of the law (Hayek, 1973: 134).

### *2.2.1 Characteristics of the rule of law*

Identifying the characteristics of the rule of law depends on the precise definition of 'law' and disagreements on the latter have engendered some divergence in the literature on the rule of law. Given the meaning attached to the law and the rule of law here it is nevertheless possible to compile a list of characteristics that reflects a very broad opinion in the literature (including the work of Buchanan, 1975; Dicey, 1920; Hayek, 1944 [1971]; 1960; 1973; Popper, 1966a; Rawls, 1971; and Raz, 1979). The central characteristics of the "rule of law" that are highlighted here include: firstly, that there are clear limits to the power of government at all levels; secondly, the law must be known and certain (facilitating the forming of expectations); thirdly, the law must be general and equal; fourthly, there must be a clear separation between the legislative and the judiciary powers; and fifthly, it is crucial to set legal limits to administrative discretion.

These characteristics of the rule of law describe what it is like to be subject to the rule of law, they do not describe what is required to secure the rule of law (Lovett, 2002). Securing the rule of law depends on the institutional matrix more broadly and may lead different societies down alternative paths. For example, the institutional matrix in Bulgaria may have required the adoption of a currency board as monetary policy regime to secure the rule of law in that country, while a floating exchange rate was required to effect the same end in New Zealand (Ball, R., 1999).

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[91] Lord Acton, who is justly famous for cautioning against the dangers of unchecked power, described the constitutional question as a question "...between liberty and authority, government by consent and government by force, the control of the subject by the State, and the control of the State by the subject" (Acton, 1921: 308).

#### 2.2.1.1 Clear limits to the power of government at all levels

A clear limit on the power of the state, especially in the form of a constitution, is one of the two chief methods for resolving the paradox of power. The other is the separation of powers, which is discussed below (Buchanan, 1975). Yet, a constitution and the separation of powers are not competing solutions: the separation of powers is often required and protected by the constitution, while an independent judiciary (often a constitutional or supreme court) guards over the constitution in turn[92]. However, limiting the coercive powers of the state requires that this constitution meets certain principles, including that wider political support is required for constitutional change than for enacting legislation of in-period politics (Hayek, 1960). The other principles overlap with the features of the rule of law summarised below.

Important though constitutions are, they are neither the only, nor sufficient means for limiting the arbitrary exercise of coercive power by the state. Other checks on the government include: the incentives facing public officials, the delineation of private and public property, and the rules that regulate elections and political participation in general (World Bank, 2002).

Additionally, limiting the power of government is a clear rejection of the "theory of unchecked sovereignty" (Popper, 1966a). Instead the separation of constitutional and in-period politics is asserted, with the former providing a stable background for, and limit to, the initiatives of in-period politics. To the modern ear, James Otis sounds overly conservative when, on behalf of the American colonies, he claimed that "...the laws of England may be a very good thing, but there is such a thing as a higher law" (quoted in Acton, 1921: 341). But he is right and progressive, as long as the 'higher' law is seen as the slow changing, but dynamic agreement of society at the constitutional level.

#### 2.2.1.2 The law should be known and certain

The following joint features of the rule of law - that private and public discretion be checked by the law and that the law be so formulated that it can guide public and private decisions[93] –

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[92] The 18th century French political philosopher, Montesquieu, contributed much to solving the paradox of power through combining a constitution with the separation of powers (Beyer, 1995).

[93] "The law is not just a fact of life, it is a form of social organisation that should be used properly and for proper ends... The law must be capable of guiding behaviour, however inefficiently. Like other instruments, the law has a specific virtue that is morally neutral concerning the end to which the instrument is put.... For the law this virtue is the rule of law. Thus the rule of law is an inherent virtue of the law, but not a moral virtue" (Raz, 1979: 18-19).

implies that the law be prospective, clear and stable[94] (Dicey, 1920; Raz, 1979). The law cannot be known and hence not inform decisions, if it is retrospective, changes rapidly or is unclear. And the test of the law's clarity and certainty is found, not in the hard cases which every legal code faces and by virtue of which the rule of law remains a matter of degree, but in the extent to which minor disagreements do not lead to formal legal action. The rule of law only succeeds in facilitating decentralised decision making if it does not require legal intervention in more than a small minority of cases. For Hayek (1960: 208) the "essential point" in this issue is that "the decisions of the courts can be predicted."

The existing distribution of rights is itself a potential cause for conflict, especially in countries like South Africa or Argentina where the distribution of property has, for historical reasons, been very unequal[95]. This is not, however, the kind of potential conflict which the rule of law addresses. The latter is focussed on defusing the conflict that arises from uncertainty as to just what the delineation of rights is, now and in the future. In the face of such uncertainty the predation and protection costs could make decentralised decision making prohibitively expensive (Buchanan, 1975). However, if the law is known, enforceable and enforced and credible over time, then the rule of law contributes greatly to reducing the uncertainty of social interaction.

Buchanan (1975) emphasises what he calls the categorical difference between the enforcement of claims and the initial assignment (or definition) of claims. The rule of law is exclusively relevant to the former, i.e. it concerns what happens after the initial assignment of rights. In this way Buchanan (1975) distinguishes between the "protective state" which upholds the rule of law, and the "productive state" which participates as a producer and consumer in economic activity[96,97]. While society uses the productive state to undertake collective decisions, the protective state is not a decision making body, in the sense of weighing up the costs and benefits of competing ends. Whether the monetary policy regime is located in the protective or the productive state will

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[94] Rules governing an abstract order are set with the intention of permanence to facilitate the formation of expectations, but remain subject to revision as the understanding of the interactions of different rules increase (Hayek, 1973). This piecemeal revision of rules is discussed at greater length in chapter 4.

[95] Hence the balancing of the "rule of law" with the "recognition of past injustices" in the preamble to the South African constitution (Republic of South Africa, 1996).

[96] Hayek (1973) draws a similar distinction between the state's "coercive" (Buchanan's protective state) and productive functions. Though these two functions are performed by the same entity, their roles are distinct. Whereas the latter functions as one more organisation that participates in production and exchange, in the former role the state affects the rules by which production and exchange is conducted.

[97] Wagner (1993) added a third category, the "distributive state" to this nomenclature. However, since the monetary policy regime has no role in systematic distribution, separate from fiscal policy, this third role for the state will not be considered here. This is not to deny that monetary policy has an effect on distribution, it is only denied that this effect is systematic: inflation and disinflation undoubtedly affects the distribution of wealth and income, but it does so arbitrarily (Keynes, 1924).

consequently influence the extent to which we regard the rule of law (as opposed to discretion) as the correct framework for monetary policy.

Despite appearances, the rule of law is not incorrigibly conservative. Indeed, Raz (1979) includes 'openness' as one of its central characteristics. Besides the openness of the rules themselves, the decentralised framework is productive of a continuous re-alignment of rights and claims through exchange. The importance of the rule of law is not a protection of the *status quo*, and in that sense stability, but that it renders the changes to those rights and their consequences more predictable (Buchanan, 1975). This is not just a theoretical point; a considerable body of empirical evidence has accumulated that demonstrates the importance of non-arbitrary government for encouraging exchange and, hence, economic prosperity (World Bank, 2002).

In-period politics, in contrast with constitutional politics, responds to specific needs, and cannot be set according to the above requirements. However, the rule of law requires that the directives of in-period politics be guided by the general laws of the constitutional level. Two kinds of general laws guide the deliberations of in-period politics, they are: firstly, those laws that create authorities, for example central banks, and, secondly, those that specify the mandate, goals and monitoring of these authorities (Hayek, 1960; Raz, 1979).

#### 2.2.1.3 The law should be general and equal

Competition in a decentralised system is blind, in the same way that the classic icon of justice is of a blind arbiter judging impersonally. Accordingly, Hayek (1944 [1971]: 76) argued that "...though justice and competition may have little else in common, it is as much commendation of competition as of justice that it is no respecter of persons." That the law apply equally to all, including the rulers, is the basic requirement if the law is to fulfil the protective role required for negative liberty (Dicey, 1920). Such generality and equality implies that the law must aim (from behind a veil of ignorance) at improving everybody's position, while not harming anybody predictably (Hayek, 1960).

#### 2.2.1.4 Separation of powers

In substituting the theory of "checks and balances" for the theory of "unchecked sovereignty" Popper (1966a) elevated the separation of powers to the front rank of important political institutions. Hayek (1960) argues that general and equal laws cannot be constructed and applied credibly, if these functions were performed by the same authority. As mentioned above, this

argument for the separation of powers has a long history in the contraction political philosophy, and has been recognised as a fundamental guarantee that no authority gains such control over the lives of its subjects that the authority can pursue its own particular interests instrumentally through them (Hayek, 1944 [1971]).

Raz (1979), writing as a jurist, emphasises the requirements for an independent judiciary, including: the procedure for appointing judges, the manner of determining their salaries, the securities of their tenure and so on. These requirements are analogous to those required for an independently functioning monetary authority, as is discussed below.

#### 2.2.1.5 Legal limits to administrative discretion

Both Hayek (1960) and Raz (1979) argue that the rule of law is not inconsistent with extensive delegation of power to various levels of the bureaucracy, as long as the delegation to these authorities is constituted by and receive their mandates, goals and monitoring from general law. In economics, this requires a solution to a principal-agent problem: society is the principal and uses the general law to prevent the authority (or agent) from exercising coercive initiative.

The degree to which government officials are constrained by the rule of law has an interesting implication for economic policy in general and monetary policy in particular. A state can implement a policy that devolves discretion to officials at lower levels, only if supporting institutions exist which prevent the harmful exercise of that discretion. An independent financial regulator need to be balanced, for example, by some mechanism for holding its officials to public account (World Bank, 2002). Likewise, a more flexible monetary policy (like inflation targeting with a floating exchange rate) requires supportive institutions, such as deregulated product and service markets. Absent these supportive institutions, a country may be better served by a more rigid monetary regime, like a very hard currency peg (Ball, R., 1999). This is the important issue of matching formal and informal economic, political and social institutions in a country.

The principal-agent (or contracting) approach does not envision government by algorithm[98]. Rather, authorities, at all levels, require wide powers of discretion to apply the general law in specific cases. What it prevents is that discretion be used to infringe the private sphere of any individual (Hayek, 1960). Discretion should not harm anybody in a predictable manner, just as

[98] Indeed the programmatic application of laws risk the tyranny of the law seen in many repressive societies (see for example the descriptions of repressive and programmatic law in Kapuscinski, 1998; Naipaul, 1998).

general laws do not harm anybody in a predictable manner. This issue has become the focal point for much recent debate about the consistency of the welfare state and the rule of law (for example, Hayek, 1960; Scheuerman, 1994) and was prefigured by Hayek's (1944 [1971]) concerns - at the very launch of welfare states in the West - that they would become a 'road to serfdom'.

The features of the rule of law described here are questions of degree, not kind. Consequently, the rule of law is never comprehensively established; its realisation is a question of degree too (Raz, 1979). Nevertheless, there seems to be an important positive association between the degree to which a government is limited by the rule of law and rising prosperity in a society (Pejovich, 2001). In terms of figure A.1: the rule of law could be located at any number of points along the institutional possibility frontier, but some positions are clearly more efficient (in terms of the costs of disorder and dictatorship) than others.

The final constitution of the Republic of South Africa establishes the "supremacy of the constitution and the rule of law" (Republic of South Africa, 1996), and signifies an end to what Devenish (1998) called "...parliamentary sovereignty and its concomitant executive aggrandisement." Nevertheless, in South Africa, as elsewhere (see for example, Dicey, 1920; Scheuerman, 1994) the realisation of the rule of law has been - especially on economic issues - diluted by clauses like "the public interest" and "the achievement of equality"[99]. By implication, it is to chapter 10 of the Constitution (on public administration), but especially the Reserve Bank Act of 1989 and its subsequent amendments that we have to look for the limits on the authority of the South African Reserve Bank (SARB). These issues are taken up in chapter 8.

### 2.2.2 *Reasons for adopting the rule of law*

The rule of law seems inextricably linked to the conception of a functional decentralised society (Acemoglu, 2003), and is therefore supported by the positive and normative arguments for liberalism. Normative arguments for the rule of law are essentially the same as those behind the

[99] Indeed there is now substantial doubt whether the Final Constitution embodies the rule of law in the classical liberal sense of limiting government. In Ferreira v Levin VO (1996), constitutional court justice Ackerman interpreted the constitutional guarantee of "freedom and security" (Final Constitution chapter 12) to define and protect a sphere of individual influence along the lines of liberal authors such as Berlin and Kant. However, justice Ackerman's interpretation was subsequently rejected by the majority on the constitutional bench, in favour of narrow reading referring to physical security only. Justice Chaskalson, writing for the majority, argued against an interpretation that presumes individual liberty, in his words: "the court ... would be ill-advised to obstruct the conduct of government by requiring any government action which interfered with individual liberty to meet exacting criteria" (quoted in Chaskalson, Kentridge, Klaaren, Marcus, Spitz and Woolman, 1996: 39-15). Chaskalson et al (1996: 39-27) interpret the majority's stance as reflecting a sensitivity for what they call "... extensive regulation and redistribution that is currently a pressing political necessity in South Africa."

negative conception of liberty (see for example, Acton, 1909 [1862]; 1909 [1877]; Berlin, 1998 [1958]). Raz (1979: 14) refines the liberal argument by extracting the jurisprudential requirements of negative liberty. He reasons that if respect for people implies respecting their ability to make their own choices and plan their own actions, then the rule of law becomes a necessary condition for a society that respects individuals, in his words:

> "Violations of the rule of law affects one's fate by frustrating deliberations, by making it impossible to plan the future or to decide on actions on the basis of a rational assessment of their outcome. The rule of law provides the foundation for the legal respect for human dignity" (Raz, 1979: 15).

The positive arguments for the rule of law overlap with those discussed in the first chapter. In addition to the empirical literature (referred to in chapter 1) that tests the contribution of the rule of law to economic advancement indirectly, there is also a growing literature of direct tests on the sensitivity of, for example, economic growth or per capita income to different degrees of enforcement of the rule of law (for example, Acemoglu, Johnson, Robinson and Thaicharoen, 2002; Dollar and Kraay, 2002; World Bank, 2002). This empirical literature has found tentative support for the hypothesis that the rule of law is an important determinant of economic growth.

Both the positive and normative arguments for the rule of law mentioned above are essentially negative[100], but there is additionally a further, though related, positive reason for adopting the rule of law, i.e. that it creates a window for rationality in social policy that would be otherwise absent. "Rationality" is here used in the sense of "critical rationalism", or the "simple straightforward rationality" of the Pre-Socratic Ionian philosophers[101], as developed by Karl Popper (see for example his 1994; 1999; 2000 [1959]), amongst others.

#### 2.2.2.1 The rule of law and critical rationalism

Popper's (1992 [1958]: 151-152) thesis is, in his words: "[that] the rationalist tradition, the tradition of critical discussion, represents the only practicable way of expanding our knowledge – conjectural hypothetical knowledge, of course. There is no other way. More especially, there is no way that starts from observation or experiment." The non-existence of a principle of induction rules out a valid argument running from a finite set of observations (however large) to a universal

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[100] They are negative in the sense that the rule of law does well by avoiding evil, and that this evil only became a possibility because of the law (Raz, 1979).

[101] Paul Feyerabend (1961) suggests a similar interpretation of the Ionians Thales and Anaximander.

statement. Empirical verification of a universal statement is, therefore, ruled out. However, there is a valid deductive argument from the truth of even a single observation to the falsity of a universal statement[102] (Popper, 2000 [1959]: 41).

Accepting this theory of knowledge and rationality raises an interesting problem for the social policy maker. The issue is double-sided: on one side there is the recognition that "there is no criterion for the truth; even when we have reached the truth, we can never know it"[103] (Popper, 1992 [1979]-a: 38). On the other side, there is the recognition that there are rational criteria for progress in science (including social and policy sciences), and Popper identifies this criterion as the critical activity, in his words: "we examine our hypotheses critically. We criticise them so that we can find errors in the hope of eliminating and thus getting closer to the truth" (Popper, 1992 [1979]-a: 38).

Science starts with problems, and proceeds with bold conjectures which are then confronted with evidence in attempted refutations. But a problem implies a frustrated expectation; the problems of science occur against a background of tentatively accepted ideas which generate the expectations, and which are the proximate causes of new conjectures. A part of this critical activity is the tentative acceptance of observations. Both with respect to the data and the conjectures, the rationality of the process lies in the inter-subjective testability of scientific propositions. Rationality is a social result which obtains in an open and scientific society. The inter-subjective testability of theories, as well as of basic statements, means that there is never 'absolute certainty' in science. "The demand for scientific objectivity" says Popper (2000 [1959]: 280), "makes it inevitable that every scientific statement must remain tentative for ever."

Though Popper's description of the critical method contains many conventional components (especially in the form of methodological rules), it is by no means irrational. The critical method

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[102] For Popper (2000 [1959]: 41) "...such an argument to the falsity of universal statements is the only strictly deductive kind of inference that proceeds, as it were, in the 'inductive direction'; that is, from singular to universal statements."

[103] More poetically, still, is Popper's favourite quotation from the Greek Playwright Xenophanes:

> "but as for certain truth, no man has known it,
> nor will he know it, neither of the gods,
> Nor yet of all things of which I speak.
> And even if perchance he were to utter
> The final truth, he would himself not know it:
> For all is but a woven web of guesses" (quoted in Popper, 1992 [1979]-b: 152-153).

would only be irrational if the touchstone of rationality was the provision of "good reasons" or "justifications" for presently held theories or statements. For Popper (and indeed Hume) such an understanding of rationality would itself be irrational, due the non-existence of a principle of induction. Popper argues, in contrast, that nothing can be more rational than to accept our theories tentatively as bold conjectures and then to test them severely in the application of the critical method[104,105].

In *The poverty of historicism* Popper (1961) draws the implications of critical rationalism for social and economic policy (see also Popper, 1966b). He starts by distinguishing two methods whereby the state could intervene in economic and social affairs: firstly, by direct intervention, that is to create authority for some person or persons to pursue given ends[106]. Secondly, the state could regard ends as given and concern itself with designing and implementing institutions that will lower the cost with which individuals pursue their own ends. It is the second method which is relevant to the present discussion of economic policy at the constitutional level.

Not only are institutions always imperfect; there are no blueprints for efficient institutions either (World Bank, 2002) and, hence, policy makers need to evaluate the unintended consequences of their institutional design continually, but in a piecemeal manner[107]. Nevertheless, so far as institutions create incentives for behaviour, it is possible to see by trial and error whether an institution is functioning as intended. And when experience and criticism suggests that there is a problem, then piecemeal adjustments can be made (Popper, 1961).

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104 The philosopher Alan Musgrave (1993: 524) defended the critical conception of rationalism as follows: "there is nothing more rational than a thorough and searching critical discussion. Hence the best reason we can have for believing an evidence transcending hypothesis is that it has best survived such a discussion. This is the reason for adopting CR [critical rationalism]."

105 In economics, too, competition is central to the theory of rational behaviour. In a decentralised system, competition encourages rational behaviour through the material sanction it places on irrationality. On this interpretation rationality is, therefore, a social result as Vernon Smith has argued, in addition to being a postulate of individual behaviour (Smith, V.L., 1991). Hayek advanced the same argument as the Nobel Laureate Vernon Smith; in Hayek's (1979: 75-76) words: "...rational behaviour is not a premise of economic theory, although it is often presented as such. The basic contention of theory is rather that competition will make it necessary for people to act rationally in order to maintain themselves... it is therefore in general not rationality which is required to make competition work, but competition, or traditions which allow competition, which will produce rational behaviour." Popper's critical discussion amongst scientists is a subset of this, more general, competition in an open society.

106 Hayek (1944 [1971]: 77-78) denies that society merely transfers the power to pursue particular ends to a public authority. He insists that such power is "...newly created and which in a competitive society nobody possesses".

107 For Popper (1961: 66) the characteristic feature of a piecemeal policymaker is that "... whatever his ends, he tries to achieve them by small adjustments and re-adjustments which can be continually improved upon... accordingly, he will make his way, step by step, carefully comparing the results expected with the results achieved, and always on the look-out for the unavoidable unwanted consequences of any reform; and he will avoid undertaking reforms of a complexity and scope which make it impossible for him to disentangle causes and effects, and to know what he is really doing."

This piecemeal, institutional, approach is also the evolutionary method of an open rule of law. If open, the rule of law incorporates the rational method of trial and error into policy decisions. Though, this process of trial and error with institutions is slow and cautious, it is not conservative. Rather, it allows experience to inform the state as to the success of existing institutions and suggests areas for improvement. In contrast, arbitrary or *ad hoc* policy decisions cannot be compared rationally with subsequent experience[108], and nothing can be learnt from their success or failure[109].

It is with regard to this need for piecemeal reform that democracy comes into its own as an important part of a decentralised society (Dietze, 1979). Democracy, through its regular elections as a feedback mechanism, creates an institutional mechanism which allows continuous experimentation with political institutions. Elections are the material sanctions that encourage rationality in politics in the way that market sanctions do in economic life. "It [democracy] makes possible the reform of institutions without using violence, and thereby the use of reason in the designing of new institutions and the adjusting of old ones," argued Popper[110] (1966a: 126).

Critical rationalism can also explain why the "indeterminacy thesis" is not fundamentally destructive of the rule of law. Indeterminacy refers to lack of objectivity as well as the uncertainty of applying the abstract law in specific cases (Lovett, 2002; West, 2001). It is a potentially serious problem. For example, if a policy rule was assigned to the monetary authorities, indeterminacy cautions that society may not be able to tell in any particular circumstance whether the authorities are, in fact, implementing the rule. Critical rationalism diminishes the force of this argument by emphasising that rationality and objectivity are never located in objective individual judgements, but are the social results of mutual criticism, by individually subjective participants[111] (Popper, 1994). Judges are subjective, but their decisions gain objectivity in the light of critical discussion on the bench and in the public domain. The same holds for monetary authorities: given sufficient transparency, the rule could be implemented rationally and objectively.

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[108] No expectation can be formed with regard to an arbitrary decision. Hence, it is not possible to say whether subsequent events confirmed or dis-confirmed the expectations; trial and error is impossible.

[109] When the problems of the hour dominate, social scientists have often recommended more radical reform than implied by piecemeal social policy. In the run-up to the French revolution the Physiocrats, were "... prepared to undo the work of absolutism by the hand of absolutism" (Acton, 2000: 11).

[110] Popper traced this critical rationalist view of democracy to Athens in its Golden Era, where Pericles argued in his famous funeral oration: "...although only a few may originate a policy, we are all able to judge it" (Quoted in Popper, 1966a: 186).

[111] Lovett (2002) also argues counterfactually that the existence of stable social institutions like property or a basic trust are *prima facie* evidence against the radical interpretation of the indeterminacy dissertation.

In summary, the rule of law is beneficial as a necessary condition for the negative liberty implied in decentralised decision making. Further, the rule of law also provides a window for rational social policy. At a higher level of abstraction Raz (1979: 18) claims that "...conformity to the rule of law is an inherent value of laws, indeed it is their most important inherent value" in a rational decentralised society, and adds that it is the "...essence of the law to guide behaviour through rules...therefore the rule of law is the specific excellence of the law". This chapter now turns to the consideration of what conformity to the rule of law implies for a monetary policy regime.

## 2.3 IMPLICATIONS OF THE RULE OF LAW FOR A MONETARY POLICY REGIME

In the first few decades of the twentieth century most governments consolidated their monopoly power over monetary institutions. South Africa was no exception, with the Currency and Banking Act of 1920 (Union of South Africa, 1920), establishing the South African Reserve Bank and granting it a monopoly right on the issuance of domestic currency[112]. However, once governments had assumed the monopoly power over money, the control of the money supply raised a serious challenge for liberal economists. Herbert Simon (1936: 1-3) formulated the concern with considerable foresight[113], and the preamble to his argument is repeated in his words:

> "The monetary problem stands out today as the great intellectual challenge to the liberal faith...[as seen by] the fact that economists have become accustomed to deal with monetary problems in a manner which impliedly belies their professed liberalism...Indeed, it may be said that economists, as students of money and banking, have accepted and propagated the first serious heresy among liberals."

Behind this concern was the observation that monetary economics, and central banks, had progressively adopted a position that located the monetary policy regime within the scope of the productive state. This stands in stark contrast with the liberal requirements that monetary policy falls within the protective state. The rules versus discretion debate (of which more in chapter 4) has, therefore, become a constitutional question, i.e. the issue has been understood as asking

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[112] Initially, the monopoly was for a 25 year period, but it has since been extended and, finally, fixed indefinitely (Mboweni, 2001b).

[113] Hayek (1960) voiced a similar concern with an argument that inflationary monetary policies lead to an increasing role for government in the economy. This contentious argument is not, however, necessary to support a proposal for the rule of law in the monetary policy regime. It is sufficient to draw the link between certain monetary policy regimes, and the rule of law and between the rule of law and decentralised decision making as has already been done.

whether the monetary policy regime is part of the protective state, and hence falls within the ambit of the rule of law, or whether the monetary authorities should be allowed to exercise their discretion as part of the productive state[114].

The launch of the Economic and Monetary Union in Europe (EMU, hereafter) is a prominent recent example of politics at the constitutional level and relates, of course, directly to the monetary policy regime. From a constitutional perspective Kirchgassner (1994) argued that the design of monetary policy in the EMU should in the first place aim at preventing the European Central Bank (ECB, hereafter) from introducing monetary surprises in the economy. To this end, the ECB should operate with a contingent rule, like money or inflation targeting. Since its launch in 1999, the EMU has operated with a combination of money and inflation targets as a constitutional check on the discretion of the ECB.

The first chapter pre-empted the answer to this question in the argument that money serves its institutional role best when the value of money as an asset, and as a means of exchanging other assets, is predictable. This reduces the debate of rules versus discretion to one of deciding amongst rules[115] (Buchana n, 1983). The challenge of a credible commitment to predictable money is similar to that of a credible commitment to the honouring of property rights, i.e. the paradox of power. It was argued above that liberal or decentralised societies resolve this paradox by implementing a rule of law.

A contractarian view has gradually emerged in monetary economics in response to this paradox of power, according to which the rule of law, and by implication the separation of powers, should be extended to the monetary authorities. The next chapter traces the history of 'productive money' and the reaction towards the liberal view that emerged during the last quarter of the twentieth century, but first the connection between monetary policy and the rule of law is explored.

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[114] It also follows that the rules versus discretion debate is one of monetary "strategy", not of monetary "tactics", as it concerns the long term framework for monetary policy not the concern with any specific setting of the policy instruments (Summers, 1991).

[115] Ben Friedman (2000: 18) is correct to observe that this preference of the rule of law derives from a political economy argument, though he is wrong to argue that it is, by that fact, not an "economic" argument, too. Economic analysis has been extended to include the institutional considerations mentioned here as well as the analysis of behaviour by policymakers. The consistency between economics and political economy on this issue is demonstrated in chapters 3 and 9.

### *2.3.1 Characteristics of the rule of law for a monetary policy regime*

#### 2.3.1.1 Clear limits to the power of government at all levels

Absent clear limits on the power of the government – or, if independent, on the monetary authorities - there is a clear incentive for the abuse of the printing press and no guarantee against it[116]; or, as Simons (1936: 25) lamented: "As things stand now, there is almost nothing which a dominant party may not do or leave undone financially, without rebuke."

This problem can only be resolved if a rule at the constitutional level[117] specifies how the monopoly power over money is to be exercised. In the next chapter the trend towards adopting such a specification in terms of explicit targets for the monetary policy regime, combined with feedback rules to attain those targets, is traced. Inflation targeting is potentially consistent with a clear limitation to the power of government, as will be argued in chapter 8. However, such consistency requires that power of the government also be limited where the specification of the target is concerned, and this raises a concern for the manner in which inflation targeting has been implemented in South Africa. This issue is considered at greater length in chapter 9.

#### 2.3.1.2 The law should be known and certain

This requirement of the rule of law has two important implications for a monetary policy regime. Firstly, to allow the price system to guide decentralised decision making money must not become disruptive. By implication, a monetary policy regime must be prospective, clear and stable. In a prospective monetary policy regime the public knows in advance how the central bank will respond to developments in the economy. In chapter 4, this requirement will be associated with the concept of a contingent rule; but even if prospective, monetary policy could fail to guide behaviour if non-transparent; hence, the requirement of clarity.

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[116] Hayek (1979: 58) argues this point emphatically in his *Law, Legislation and Liberty* where he claims that "it is of course nonsense that government is ever needed to 'protect' the money used in a country against any threat... other than that which comes from government itself: it is against the state that money must primarily be protected. The exporters of money, or providers of another kind of money, and the like, against whom the responsible politicians skilfully direct the indignation of the public, are in fact the best watchdogs who, if they are allowed freely to practise their trade, will force government to provide honest money"

[117] Simons (1936) did not favour a constitutional specification, but a rule "...written into our fundamental law... [that] must provide the same sort of limitation and mandate as would a constitutional provision." He did not explain his jurisprudential scruples with locating the rule at the constitutional level, but his "fundamental law" operates in the way required by the rule of law.

Secondly, the long-term perspective of many financial decisions requires stability in the contingent rule used by the monetary authorities. Buchanan has argued forcefully that absent predictability in the monetary policy regime, the institutional protection of property rights (and consequently much else besides) is undermined and severely restricted in a decentralised system. In his words: "...so long as the political authority retains effective power (and it is understood to do so) to confiscate property-holdings that are denominated in monetary units of account, the legal structure that allows persons to own and control assets remains crippled; the potential efficacy of the institution of private property itself remains only half-way exploited" (Buchanan, 1993: 45). He proceeds to argue that a contractarian solution to monetary management would "...work miracles, whether measured against the criteria of liberty or efficiency" (Buchanan, 1993: 56).

Chapter 1's exploration of money's role in a decentralised economy, combined with the connection between money and property rights, support the argument that the monetary policy regime be seen as a part of the protective, as opposed to the productive, state. This view has not always dominated, indeed Simons (1936) feared that the opposite view was gaining ground in the wake of the Great Depression. However, as the next chapter demonstrates, the experience with the view of money as part of the productive state has been an unhappy one, and has added force to the argument that the monetary policy regime should be located in the protective state.

A transparent inflation targeting framework, implemented by a competent central bank, is one such contractarian monetary policy regime. Implementing an inflation targeting regime does not imply that monetary policy would become mechanistic, but it would imply that the central bank ceases to create independent surprises in the economy. At any point in time the domestic and international economy would cause a series of shocks, but the monetary authorities would respond in a predictable manner to these shocks, and in this way allow decision makers to use the monetary system to set their plans, given a predictable monetary framework. Chapter 7 considers the extent to which the present implementation of inflation targeting in South Africa satisfies the requirements of transparency implied here.

#### 2.3.1.3 The law should be general and equal

Though monetary policy regimes usually satisfy the requirement of being "general and equal", two important exceptions are hyperinflation and financial repression. The arbitrary redistribution of hyperinflation and the associated erosion of property rights have already been discussed.

Financial repression refers, on the other hand, to a set of polices - including credit controls, interest rate ceilings and so on – that have the effect of limiting the development of financial instruments and financial markets in developing countries (Agénor and Montiel, 1999). Interest rate ceilings and credit rationing often lead to privileged treatment for the government, thus violating the requirement of generality and equality of the rule of law.

In accordance with the rule of law, general rules must establish the central bank and also specify its mandate, goals and monitoring. With respect to the latter, Raz (1979: 9) advances the interesting argument that the specification of control over public authorities under the rule of law, should not be confused with "democratic arguments for the close supervision by non-elected bodies over lawmaking by popularly elected bodies." The difference is that the democratic arguments relate to the question of legitimate authority, whereas the rule of law relates to the distinct problem of limiting authority. In the monetary policy literature the democratic arguments have lately received close attention (see for example Debelle and Fischer, 1994; Fischer, 1995a), but on Raz's (1979) argument this begs the question of whether the monetary policy regime adheres to the rule of law. Chapter 9 returns to this issue.

#### 2.3.1.4 Separation of powers

Once the monetary policy regime has been located within the protective, as opposed to the productive state, the separation of powers becomes important for monetary authorities too. The independence of monetary authorities are discussed in greater length in chapters 3, 8 and 9 where the following issues will be considered: the goals of monetary policy, the influence of the government over the stance of policy and the composition of the policy making body (including tenure, appointment, salary, resources available to the policy makers).

#### 2.3.1.5 Legal limits to administrative discretion

Whereas the monetary policy regime - like general laws under the rule of law - must be prospective, clear and stable, the setting of monetary policy at any point in time resembles the specific directives of in-period politics more closely. Maintaining the rule of law, therefore, requires a set of legal limits to administrative discretion: granting operational independence to the monetary authorities assigns potentially vast powers to the policy-making committee of the central bank. A policy rule implies a number of clear limits to the discretion of the monetary authorities: primary amongst these is the contingent plan itself, the yardstick for evaluating the decisions of the monetary authorities at every point in time (and over time).

The transparency of the decision-making procedure at the monetary policy committee (MPC, hereafter) is a second mechanism which limits the discretion of the committee. In practice, this transparency is achieved by publishing the minutes of monetary policy committee meetings, publishing the voting pattern of the committee members and so on. A third mechanism to limit the discretion of the monetary authorities is to appoint the members of the monetary policy committee independently and to hold them independently accountable for their decisions, most notably through the public scrutiny of their voting records.

Competing currencies offer another check on the administrative discretion of monetary authorities. If the authorities were to debauch their currency, then people would rationally switch their portfolio's and pricing decisions to a competing currency that has been managed more prudently (Hayek, 1979). Though the monopoly over money assumed by modern governments disallows direct competition, indirect competition through foreign exchange not only can, but does occur. The extensive spontaneous dollarisation in developing countries with unstable monetary regimes are examples of this (Agénor, 2000a: 69-72). It follows that a freely convertible currency is another mechanism by which the discretion of the monetary authorities can be checked, and conversely capital controls create space for monetary mismanagement.

### *2.3.2 The rule of law and monetary policy in South Africa*

As mentioned above, the Final Constitution of South Africa specifies the constitutional role of the South African Reserve Bank in sections 223 through 225. Accordingly, the "powers and functions" of the SARB "are those customarily exercised and performed by central banks..." (Republic of South Africa, 1996: s225). The Reserve Bank Act of 1989 (Republic of South Africa, 1989) and, its subsequent amendments, provides the detail for what is hinted at in the constitution.

However, the constitution does contain two articles in section 224 which are crucial from the perspective of constitutional economics: firstly, it specifies the primary objective of the SARB, i.e. "...to protect the value of the currency in the interest of balanced and sustainable growth in

the Republic"[118] (Republic of South Africa, 1996: s224). Secondly, the SARB is granted independence "in pursuit of its primary objective" (Republic of South Africa, 1996: s224).

The location of the primary objective of an independent monetary authority in the constitution and the formulation of their primary objective as the protection of the currency's value supports the interpretation that the South African monetary policy regime should be seen as part of the protective state. This was evident to the participants in the constitutional process and the cause of much disagreement, or as Devenish (1998) observed "heated and vociferous debate". Representatives of organised labour, amongst others, wanted to locate the monetary policy regime within the productive state. For example, Sam Shilowa, then head of COSATO (the Congress of South African Trade Unions) asked: "how can we have a situation where the government's policy is to provide housing and the facilities for loans are created, but the reserve bank decides this is inflationary and puts up interest rates, making housing less affordable?" (quoted in Devenish, 1998: 317). The Final Constitution represents a choice against the view articulated by Shilowa.

Given that the Final Constitution's specification locates the monetary policy regime within the protective state, the subsequent institutional analysis can proceed while bearing the requirements of the rule of law in mind. These requirements are fundamental to untangling the paradox of power in monetary policy as elsewhere in the protective state. Nor is the paradox of power a mere theoretical possibility in monetary policy. Historically, and more especially in the post-War era, monetary authorities all too frequently abused their power to undermine the value of money, just as Simons (1936) predicted. Chapter 3 considers this unhappy history, and the institutional explanations of and responses to it.

[118] SARB governor Tito Mboweni recently explained that this clause is interpreted "...as safeguarding the internal purchasing power of the rand, in other words, combating inflation, and not as defending the exchange rate" (Mboweni, 2001b: 2). An inflation targeting regime is consistent with such an interpretation of the constitution.

# CHAPTER 3 DEMOCRATIC MONEY AND THE RISE OF INDEPENDENT CENTRAL BANKS

Princes have seldom misunderstood the incentives for debauching money; nor have they been notably unresponsive to the same when power, or luck, granted them monopoly to issue money; especially fiat. At least these incentives, though not the associated dangers, were clear to Marco Polo when he learnt of the paper money issued for Kublai Kahn at the mint of Kanbala. The colourful account is worth quoting at some length:

> "In this city of Kanbala is the mint of the Great Kahn, who may truly be said to possess the secret of the alchemists, as he has the art of producing money by the following process.
>
> ....the coinage of this paper money is authenticated with as much form and ceremony as if it were actually pure gold or silver; for to each note a number of officers, specially appointed, not only subscribe their names, but affix their seals also...in this way it receives full authenticity as current money, and the act of counterfeiting it is punished as a capital offence. When thus coined in large quantities this paper currency is circulated in every part of the Great Kahn's dominions; nor dares any person, at the peril of his life, refuse to accept it in payment.
>
> All his Majesty's armies are paid with this currency, which is to them the same value as of it were gold or silver. Upon these grounds, it may be certainly affirmed that the Great Kahn has a more extensive command of treasure than any other sovereign in the universe" (Polo, 1930: 159-161).

The Venetian's metaphor was more sagacious than he could have intended in an era when alchemy retained an air of respectability. Ultimately, however, the treasure of the Kahn's mint like the alchemist's prize, seemed unrivalled, but proved ephemeral. Because the Kahn's revenue was indeed vast, the abuse of seigniorage was not extreme and the subsequent inflation contained; but over time, the balance of revenue and expenses turned ever less favourable and the inflation rose. As the value of money declined in the succeeding states, trust eroded and paper money was eventually abandoned to restore stability in exchange (Kasper and Streit, 1998; Tullock and McKenzie, 1985).

The difficulties experienced by the monetary authorities of Marco Polo's era have continued through the twentieth century[119]. This chapter considers the underlying reasons for these difficulties, as well as the theoretical and practical responses suggested by monetary economists and central bankers. Milton Friedman's contribution to these issues marks something of a watershed both intellectually and practically. Consequently, the chapter is arranged around two of

[119] Adam Smith harboured few doubts that "...in every country in the world... the avarice and injustice of princes and sovereign states, abusing the confidence of their subjects, have by degrees diminished the real quantity of metal, which had been originally contained in their coins" (Smith, A., 1981 [1776]: 43).

Friedman's predictions, which have been improbably accurate[120]: Firstly, in his address as President of the American Economic Association, he predicted that the apparently stable trade-off between the rate of unemployment and the rate of inflation (the Phillips curve) was a temporary event and that in the long run the two variables would be largely independent (Friedman, M., 1968). Consequently, monetary policy should not be sidetracked into pursuing a real goal (e.g. the level of real output, or the real growth rate of output), whilst aiming at a nominal goal (e.g. price stability) in the long run. Secondly, in his Nobel lecture Friedman (1977) predicted that the then prevailing mix of macroeconomic policies and institutions could not last, as it entailed incentives that would encourage either a drift to hyperinflation, or to institutional changes which would be productive of systematically lower inflation outcomes.

That Friedman was right - jointly with Edmund Phelps - with the first prediction was soon established by the events of the seventies, and there is presently a broad consensus on the veracity of the vertical Phillips curve in the long run. He has had to be more patient with the second prediction. However, for twenty years now, Friedman has been able to sit like Canute and watch the rising tide of prudent monetary policy resulting from institutional and operational reforms in the developed world. These reforms are discussed below and include: diminishing political influence over the central bank and the adoption of explicit targets for monetary policy. Lately (over the last decade or so) the developing world has joined the trend, too, after experimenting with various heterodox policies in the seventies and eighties.

The first section of this chapter traces the monetary policy regimes of the twentieth century and their respective results in terms of inflation. This is followed by a consideration of the various incentives which may undermine the government's commitment to prudent monetary management, and which support Friedman's second prediction. A third section describes the ideas at stake in the controversies between monetarists and Keynesians and which closes with a summary of the debate since the late seventies as well as empirical observations about central bank practice since Friedman's Nobel lecture.

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120 There is no claim here that Friedman has in any way been alone in arguing these points; only that much of the later work developed the analysis and intuitions found in Friedman's seminal contributions.

## 3.1 MONETARY POLICY REGIMES DURING THE TWENTIETH CENTURY

As a first cut in a taxonomy of monetary policy regimes, a distinction should be made between those regimes where the means of exchange is convertible into some commodity (like gold) and those regimes with no such convertibility (called fiat money regimes). Both commodity and fiat monies have international aspects, though. Domestically, the monetary authorities use their policy instruments to pursue domestic macroeconomic goals, while the exchange rate regime sets the arrangements for exchanging currencies internationally. These two aspects are inter-linked, especially when international capital flows are allowed. Indeed, when capital flows freely, the "impossible trinity" implies that the choice of independent monetary policy is, at once, a decision for a flexible exchange rate[121]. The flip side of the impossible trinity is that implementing a fixed exchange rate regime is at the same time a decision to surrender independent monetary policy, given capital inflows (Bordo and Schwartz, 1999; Fischer, 2001).

A second distinction - relevant to fiat money regimes - is that between rule-based and discretionary monetary regimes[122]. A rule-based regime specifies *ex ante* how the monetary authorities have to respond in given situations, in contrast with a discretionary regime which leaves more judgement in the hands of the monetary authorities (chapter 4 considers rule-based monetary policy more extensively).

The twentieth century started with relatively low inflation in the industrialised world under a gold standard that effectively checked the monetary initiative of governments. At the century's close the developed world - and an increasing number of developing countries, too – had returned to low inflation, and prudent monetary management. But the bulk of the century was characterised by high inflation resulting from poor, and sometimes very poor, monetary policy (Dornbusch, 2000). This section considers the monetary policy regimes behind this experience.

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[121] Fischer (2001: 8) used the term "impossible trinity" for the combination of "...a fixed exchange rate, capital mobility and a monetary policy dedicated to domestic goals."

[122] There is no question of discretion by the monetary authorities on the gold standard, or any other commodity standard (Kydland and Wynne, 2002).

### *3.1.1 The gold standard*

By the year 1900, the world's leading economies were all on the gold standard, with a few lesser developed countries using silver or fiat money. The fixed exchange rates implied by the gold standard, combined with prudent fiscal policies of the era, generated low inflation over many decades. The "Pax Britannica…", as the late Rudi Dornbusch (2000: 12) was wont to say "…was a good monetary regime."

The Great War ended not just the Empire, but also fiscal prudence and good monetary management. Continental governments, especially the former central powers and Russia, had nowhere to turn but the printing press in an ultimately vain attempt to match their expenditure with a dramatically diminished tax base. As the allies were increasing the pressures on the German fiscus at Versailles, Keynes left the peace negotiations to write the "Economic consequences of the peace" (Keynes, 1924), wherein he predicted not just the ensuing hyperinflation, but the disintegration of industrial society which follows the destruction of its money[123]. These predictions proved distressingly accurate and as inflation accelerated on the Continent, Keynes rose to the front rank of economists.

The twenties brought brief respite, but the miss-priced return to gold was ill fated in Britain. Unprecedented deflation ensued during the Great Depression; indeed, some – most famously Friedman and Schwartz (1963) – argued that the Great Depression was the result of monetary mismanagement as it allowed a recession to spiral into a depression.

Normal economic relations were suspended during World War II as price controls were combined with a dramatic expansion of the productive state. Towards the end of the war, however, a return to monetary order, internationally, was fundamental to the negotiations at Bretton Woods. Though the ensuing international monetary system was anchored to gold via the dollar, the system failed to restrain either the Federal Reserve Board, or other central banks, in the expansionary policies that followed the adoption of full employment and active stabilisation as goals for macroeconomic policy (Bordo and Schwartz, 1999). Monetary stability with fiat money required different institutions, and these were slow to emerge.

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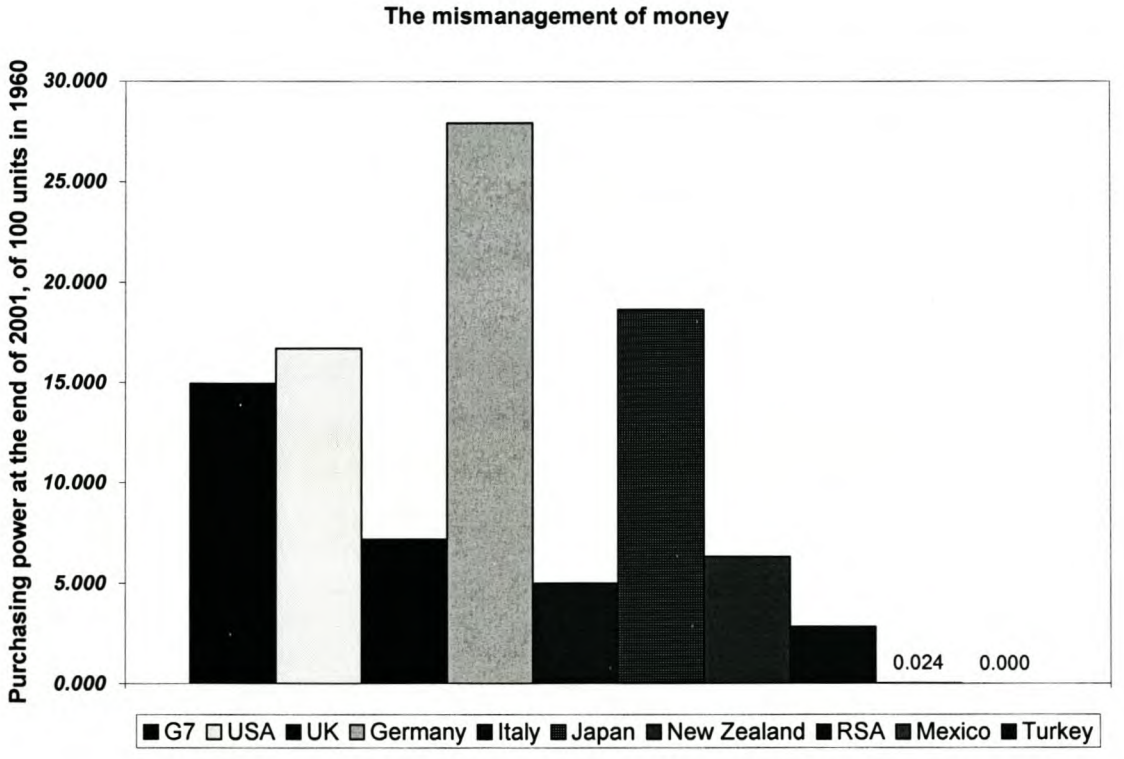
[123] "Lenin was certainly right…" Keynes (1924: 220) argued "…there is no subtler, no surer means of overturning the existing basis of society than to debauch the currency."

### *3.1.2 Fiat money in the post-War era*

The seventies, following the collapse of Bretton Woods at the start of that decade, and the disturbances of the oil shocks, underlined the inability of the then existing monetary policy regimes to maintain monetary stability. Indeed, figure 3.1 shows just how poorly central banks fared - in South Africa, as elsewhere – in protecting the purchasing power of their respective currencies. Figure 3.1 shows the extent to which the purchasing power (in 1960 terms) of 100 currency units in 1960 had been eroded by the end of the year 2001, in a selection of developed and developing countries[124].

*Figure 3.1 The purchasing power at the end of 2001, of 100 units of domestic currency in 1960*




Source: OECD statistics

Post Bretton Woods, the international financial system adopted a comprehensive fiat money regime for the first time; and for the first time there was no automatic centralised check on the

[124] Emerging market economies have, until recently, suffered from even worse monetary mismanagement than industrialised countries (Mishkin and Savastano, 2002).

discretion of modern monetary authorities[125]. Recently, Kydland and Wynne (2002) argued that there is now a consensus on the need for careful institutional design as the "best" guarantee of monetary stability under a fiat money regime; and a nominal anchor is one important aspect of such institutional design (see Mishkin and Savastano, 2002 for the same conclusion with respect to emerging market economies).

This consensus corroborates Friedman's second prediction that fiat money could not be managed prudently with the institutions of the seventies. As per chapter 1, such an institutional approach emphasises the incentives facing policy authorities, including policy goals, the method and degree of accountability for policy makers, the independence of the central bank and so on. A "policy standard" [126] requires, for its effective functioning, efficient institutions and good policies.

Absent the automatic limits on the central bank's discretion implied by the gold standard, there is no check on the amount of money that the central bank could issue and, consequently, no determinate solution to the aggregate price level in the economy; that is, generally, a fiat money system lacks a nominal anchor (Bernanke, Laubach, Mishkin and Posen, 1999). Though monetary policy is technically possible without a nominal anchor, it leaves the public's inflation expectations adrift, and the authorities may have to use costly periods (in terms of foregone output) of disinflation to rein back actual inflation, or to prevent expected inflation from materialising. In contrast, a credible nominal anchor provides a guide for inflation expectations and in this way contributes to making monetary policy easier, especially by limiting the potential dynamic inconsistency (discussed below) of monetary policy (Friedman, B.M., 2000; and Mishkin, 1999).

Though formulated explicitly as a limit on the discretion of monetary authorities, a nominal anchor is not exclusively about monetary policy. Fiscal and exchange rate policies have significant influence on the money supply too, for example through the financial policy of the government used in financing its exhaustive expenditure and through the impact of the balance of payments on the stock of domestic money. It follows that any comprehensive account of

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[125] Meanwhile, the industrialised world adopted floating exchange rates; which were required for retaining monetary independence, in the light of increasing capital flows.

[126] Kydland and Wynne's (2002) interpretation of the literature corresponds with Michel Camdessus' (formerly head of the IMF) use of the term "policy standard" to describe a fiat money system. The value of fiat money is ultimately determined by the institutional design of the system and the policies encouraged by these institutions. Or as Michael Woodford (2002a: 2) argued: "We now live in a world of pure 'fiat' units of account, the value of each of which depends solely upon the policies of the particular central bank with responsibility for it."

discretion on monetary policy requires a limit on the discretion of exchange rate and fiscal policies too[127]. If government commits to an explicit nominal anchor for monetary policy a double commitment is in effect made: firstly, that fiscal policy will not dominate monetary policy and secondly, monetary policy will dominate fiscal policy (Mishkin, 2000c).

Mishkin and Savastano (2002: 33) linked the case for a credible nominal anchor with the uncontroversial long run goal of monetary policy, claiming that "...the key to successful monetary policy is the ability to constrain discretion so that monetary policy can focus on the long-run goal of price stability." Additionally, monetary policy becomes more accountable if an explicit nominal anchor is adopted as a yardstick with which to measure actual policy performance (Mishkin, 2000c). This two-fold role of nominal anchors - allowing the pursuit of monetary stability, while facilitating accountability - is a thread that runs through much of the modern literature on central banking as it does through this dissertation (Fischer, 1995b).

Friedman's second prediction (mentioned above) was that the institutions of macroeconomic policy would have to change if monetary order was to return. The core of his prediction is that fiat money requires a nominal anchor; and, in step with his prediction, central banks have increasingly adopted explicit nominal anchors since the early eighties. Various forces have contributed to the changes that Friedman had predicted. Among these, the inadequate monetary management of the seventies was a primary factor; governments learn, or are forced to learn, via the ballot box. Globalisation – broadly defined as the increasing interdependence of economies due to expanding international trade, capital flows and migration – has also played an important role. The effect of globalisation on the adoption of and choice between nominal anchors works through two channels. They are (Wagner, 2001): increasing uncertainty about the transmission mechanism, and secondly, a change in the constraints facing policymakers due to international capital flows.

Firstly, higher uncertainty about the impact of monetary policy via the various channels of the transmission mechanism (expenditure, exchange rates, balance sheets, the asset markets and so on) is an argument against the use of in-period discretion. Increasingly, the use of discretionary monetary policy (grounded in specific circumstances) in the face of uncertainty about the specific effects of the policy, reflects what Hayek (1989 [1974]) called the "pretence of knowledge."

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[127] In its modern guise, the instrument of monetary policy is usually a short term interest rate which the central bank affects by trading claims against the Bank for claims against the government on the secondary capital market. Fiscal policy and outstanding claims against the government are, therefore, preconditions for the implementation of modern monetary policy (Friedman, B.M., 2000).

Secondly, the increasingly competitive flow of production factors internationally, especially capital, has increased the competition between countries on the basis of their relative institutional attractiveness. The threat of capital outflows act as a real check on the adventurousness of monetary authorities[128], and in this way globalisation acts as a "...force for stability by limiting the scope for countries to pursue policies that are incompatible with medium-term financial stability" (Citrin and Fischer, 2000: 27).

Amongst the various nominal anchors presently employed[129], inflation targeting has been winning adherents internationally in recent years (see the list of countries that have implemented

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[128] In the same way, globalisation works against fiscal profligacy and high tax rates (Wagner, 2001). This fiscal restraint is another factor in the reduction of inflationary pressures, as Fischer and Easterly (1990: 138-139) observed: "...governments do not print money at a rapid rate out of clear blue sky. They generally print money to cover their budget deficit. Rapid money growth is conceivable without an underlying fiscal imbalance, but it is unlikely. Thus rapid inflation is almost always a fiscal phenomenon."

[129] At least three alternative nominal anchors remain important internationally, they are: money targeting, exchange rate targeting and the use of an implicit rather than an explicit nominal anchor. Combinations are also possible, though increasingly unpopular.

Money targeting won adherents with the rise of Political Monetarism (described below) and for good reason, as it entails the following advantages (Mishkin, 1999): Firstly, money targeting allows the central bank to respond to domestic economic developments; secondly, monitoring is easy and rapid as money supply data are released with only a short lag; thirdly, this contributes to improved accountability for the monetary authorities. However, these advantages depend on a reliable empirical relationship between the money supply and the price level and this relationship seldom exists, or breaks down due to Goodhart's law when policymakers try to exploit it. For this reason, the successful monetary targeting countries (like Switzerland and formerly Germany) used money targets as a communications device in a strategy aimed at achieving price stability, not as a rigid policy rule (Bernanke, et al., 1999). Secondly, and more negatively, historically money targeting is often a guise for highly discretionary monetary policy, especially in developing countries (Mishkin and Savastano, 2002).

Many developing countries have opted for exchange rate pegs as nominal anchors, in the hope of benefiting from the following advantages of a successful peg (Mishkin, 1999): firstly, it prevents the exchange rate from generating inflationary shocks via import prices; secondly, if credible, the peg will anchor inflation expectations in the pegging country to inflation in the country against which the currency has been pegged. This is especially valuable in a country where credibility has been eroded extensively (Ball, R., 1999; Mishkin and Savastano, 2002); thirdly, a peg solves the time-inconsistency problem (discussed below) by providing a feedback rule for monetary policy; finally, a peg has the advantage of simplicity and clarity and, hence, enhances the accountability of the monetary authorities. Historically, exchange rate targets have been productive of low and stable inflation in many developed and, more especially, in developing countries, which contrasts with the poor track record of rival domestic anchors particularly in developing countries (Sterne, 2001). However, some serious disadvantages weigh against adopting a pegged currency as nominal anchor, they are (Mishkin, 1999; Mishkin and Savastano, 2002; Obstfeld and Rogoff, 1995): the loss of independent domestic monetary policy and, secondly, a fixed exchange rate leaves the economy vulnerable to external shocks without the adjustment mechanism which a floating exchange rate offers; thirdly, the market information provided by exchange rate fluctuations are lost under a pegged regime, which could delay the response of policy makers to a speculative attack; indeed, vulnerability to speculative attacks is an ever present danger of pegged regimes; fourthly, a peg could encourage foreign currency exposure which leaves the economy vulnerable to a full-fledged financial crisis, as per the Asian experience of 1997/1998; and, finally, almost all exit strategies from a peg all seem fraught with danger, as per the Argentinean example of 2002.

Thirdly, other central banks, for example the Federal Reserve Board, recognise no explicit nominal anchor. But since US monetary policy is nevertheless coherent, the Federal Reserve Board seems to operate with an implicit nominal target. In the Federal Reserve Board's case this implicit anchor is that low inflation (as opposed to full employment) is the overriding long term policy objective. Additionally, the Federal Reserve Board's policy is explicitly forward-looking and aimed at preventing inflationary pressure from gathering strength (Mishkin, 1999). Alan Blinder (for example 1997b; 1998) is a prominent proponent of what he calls the "just do it" strategy of using an implicit anchor, and the manifest success of the Federal Reserve Board is the major supporting evidence for his case. The downside of an implicit target is its inherent lack of transparency, which also undermines the accountability of the monetary authorities. Mishkin (1999) adds that dependence on the skill (and luck) of particular individuals is a further significant weakness of the implicit nominal anchor. Indeed, Popper (1966b 131) argued that: "...all long-term policy – and especially all democratic long-term policy – must be conceived in terms of impersonal institutions...we must guard against persons and against their arbitrariness." In this sense, implicit anchors fail the test of good, or rational, institutions, as described in chapter 1.

inflation targets in table 3.1). This is partly due to the comprehensive nature of inflation targeting, which sets clear limits on exchange rate policy and requires a commitment from the fiscal authorities to support the pursuit of the inflation target. Chapter 5 considers inflation targeting as a nominal anchor more closely.

*Table 3.1* *Countries that have implemented inflation targets*

| Country | Date of implementing inflation target |
|---|---|
| Australia | September 1994 |
| Brazil | June 1999 |
| Canada | February 1991 |
| Chile | January 1991 |
| Colombia | September 1999 |
| Czech Republic | June 1998 |
| Finland | February 1993 to June 1998 |
| Israel | January 1992 |
| Korea | January 1998 |
| Mexico | January 1999 |
| New Zealand | March 1990 |
| Peru | January 1994 |
| Poland | October 1998 |
| South Africa | February 2000 |
| Spain | November 1994 to June 1998 |
| Sweden | January 1993 |
| Switzerland | January 2000 |
| Thailand | April 2000 |
| United Kingdom | October 1992 |

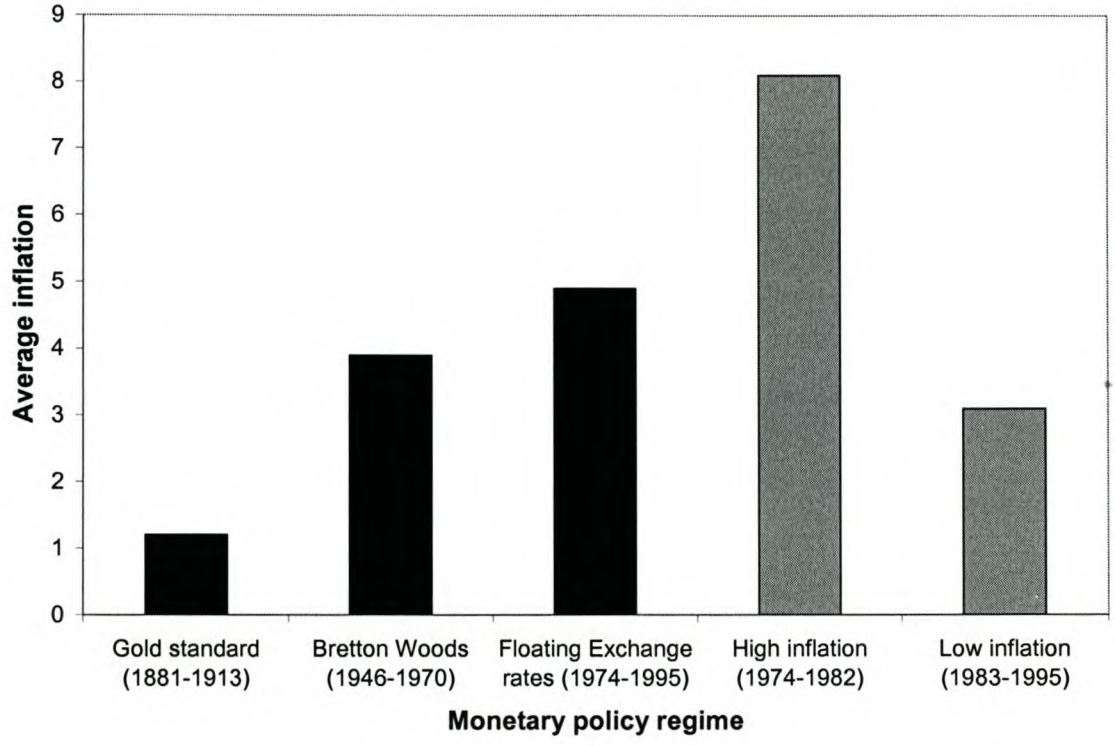
Source: Data from Mishkin and Schmidt-Hebbel (2001)

The practical result of the focus on nominal anchors since the seventies is an important change in the experience depicted in figure 3.1. In most of the industrialised world inflation was brought under control during the eighties and forced even lower during the nineties; the developing world, including South Africa, followed during the nineties. This change is highlighted in figure 3.2 where the average inflation experiences of the industrialised world under different inflation regimes are compared. During the nineties inflation has not only been lower, but more stable, internationally[130]. And whereas fixed exchange rates have in the past been associated with the

[130] Not only has inflation declined sharply, but the standard deviation of inflation has also halved since 1983 (Sterne, 1999).

majority of stable inflation episodes, inflation targeting central banks have achieved the same in the nineties under floating exchange rates (Sterne, 2001).

*Figure 3.2* *Inflation in the industrialised world under different monetary policy regimes*[131]




Source: data from Bordo and Schwartz (1999)

At the close of the twentieth century much of the world has returned to low inflation reminiscent of the century's beginning. Indeed, for the Nobel Laureate, Robert Mundell (2000: 327), "the clue to the twentieth century lies in the link between its first and last decades..." as he traced the profound economic and even political consequences of the initial success and subsequent mismanagement of the gold standard, followed by the contradictory system of Bretton Woods and the re-emergence of prudent money, when central banks had learnt how to implement nominal anchors for fiat money with flexible exchange rates.

#### 3.1.2.1 Exchange rate regimes and monetary policy

The short history of fiat money has demonstrated an important role for exchange rate regimes in the design of monetary policy regimes. The various types of fixed exchange rates were the most widely used exchange rate regimes in the post-War era, and despite delivering apparent stability

[131] The data is taken from Bordo and Schwartz (1999) and includes the USA, the UK, Germany, France and Japan.

for a period, fixed exchange rates have lately (over the last decade and more) fallen into disrepute by their association with a number of international financial crises (Kydland and Wynne, 2002).

Soft pegs[132], which had been widely used, have turned out to be non-viable in the long run for countries integrating with the international capital markets (Eichengreen, 2001). The breakdown of soft pegs has caused a "hollowing out" of the distribution of exchange rate regimes. Some of the disillusioned former soft peggers have moved all the way to very hard currency pegs - like a currency board - as a nominal anchor for monetary policy, while a few (like Ecuador and El Salvador) have even abandoned their currencies – and consequently monetary policy, too – by dollarising.

Going the other way, many countries that have opted for floating exchange rate regimes have had to find alternative nominal anchors and a number of these have been well-served by inflation targeting[133] (Fischer, 2001; Masson, Savastano and Sharma, 1997). For Eichengreen (2002), the problems of pegged exchange rate regimes biases judgement in favour of inflation targeting as the "leading candidate" for a nominal anchor in emerging market countries that have chosen a floating exchange rate in the face of rising capital flows[134].

In practice - and under pressure form increasing capital flows - exchange rate pegs have not lived up to their theoretical promise, and though they solve one species of dynamic inconsistency, they generate others (see below) (Mishkin, 1999).

## 3.2 THE INCENTIVE PROBLEMS OF MONETARY POLICY

The evolution of the international monetary system over the last century has placed significant demands on monetary authorities, and these have not always been met with equal success. Inflation has occurred frequently and with destructive effect, "...not because evil men

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[132] A soft peg is a commitment to an exchange rate value or band without the requisite constraints on domestic monetary policy to support the commitment (Fischer, 2001).

[133] The overwhelming majority of developing countries implemented exchange rate pegs following the demise of Bretton Woods, but by the late nineties two-thirds of these countries had implemented more flexible exchange rate regimes (Groce and Khan, 2000).

[134] John Taylor (2000b: 2-3) puts it more strongly, arguing that "for those emerging market economies that do not choose a policy of a 'permanently' fixed exchange rate... the only sound monetary policy is one based on the trinity of a flexible exchange rate, an inflation target and a monetary policy rule."

deliberately sought to achieve these results..." as Milton Friedman (1977: 453, 466) explained, but "...as a consequence of other policies – in particular, policies of full employment and welfare-state policies raising government spending." This section considers the incentives which have often led monetary policy makers down an unintentionally inflationary path[135]. There are two main species of inflationary incentives in a fiat money regime: the first and most abstract, is the question of dynamic inconsistency, while the second, relates to other fiscal incentives for inflation.

### *3.2.1 Dynamic inconsistency*

In the first chapter the role of money in facilitating decentralised decision making over time was highlighted. However, the effect of changes in monetary conditions vary over different time horizons, stimulating real activity in the short run, but affecting mainly the aggregate price level over a longer period. David Hume had already described this time-varying effect for money changes with insight in the middle eighteenth century, as per the following argument (quoted in Lucas, 1997 [1995]: 247) where Hume argued: "...that changes in money are neutral units changes, *and* that they induce movements in employment and production in the same direction...[it is] easy to trace the money in its progress through the whole commonwealth, where we shall find that it must first quicken the diligence of every individual before it increases the price of labour."

Contra Hume, the Phillips curve briefly (until the seventies) held out the promise of a time invariant trade-off between money and the real economy and this section traces the fall and rise of Hume's view, and its manifestation in the time inconsistency of monetary policies.

#### 3.2.1.1 The Phillips curve

When A.W. Phillips (1958) first plotted a graph of the inverse long run association between the rate of unemployment and wage inflation in the UK, he could scarcely have imagined the impact this statistical observation would have on macroeconomics and the practice of monetary economics internationally. There was, however, no great leap required between an association of wage inflation and the rate of unemployment, and an association of inflation *per se* with the

[135] It was in this spirit that the Physiocratic economist Pierre du Pont de Nemours warned the French Assembly in 1790 to guard not only against evil intentions, but also against well-intentioned but wrong-headed policies. In his words: "Bad logicians have committed more involuntary crimes than bad men have done intentionally" (quoted in Friedman, M., 1977: 471).

unemployment rate; nor between a statistical *curiosum* and a menu offering policy makers the choice between a permanently lower unemployment rate, at the cost of a permanently higher level of inflation (and *vice versa*). These two leaps occurred to some extent despite the knowledge that the theoretical underpinnings of the Phillips curve were weak (or even absent) and the caution by its early proponents - for example, Samuelson and Solow (1960) - that the short run trade-off was unlikely to persist in the long run.

The history of the Phillips curve proceeded through roughly three phases since Phillips's seminal paper (see, for example Friedman, M., 1977 for a comparable history), with the professional consensus presently somewhere between the second and third phases. And the history of the Phillips curve has had a significant influence on the theory and practice of monetary policy, as it concerns that puzzling question of the interaction of the nominal (or monetary) and real economies. Indeed, statements on the Phillips curve are *pari passu* statements about monetary policy (Mankiw, 2000).

Phillips's (1958) paper obviously initiated the first phase by establishing a stable inverse relationship between wage inflation and the rate of unemployment. By adding a constant mark-up theory of prices this relationship was quickly transformed into a stable, inverse, relationship between inflation and the unemployment rate. The initial support for the hypothesis of a stable trade-off was short-lived though, with both its theoretical and empirical aspects undermined by the mid-seventies.

The theoretical inadequacy of the Phillips curve was demonstrated contemporaneously, but independently, by Friedman (1968) and Phelps (1968). Their arguments emphasised the importance of expectations in the wage market and in other relationships where the real and nominal economies intersected.

The real wage in the labour market is measured as the difference between the money wage and the expected rate of inflation. It is this real wage that determines the level of employment (and hence the unemployment rate) in the long run. Given time to adjust, the economy would settle at a rate of unemployment which is the result of the real factors in the economy (what Friedman (1968) called the set of Walrasian relationships), and is independent of the inflation rate. However, in the short run, unexpected inflation could affect the real wage, so pushing labour off its supply curve and generating an inverse relationship between inflation and unemployment. But

this trade-off lasts only as long as it takes labour to adjust its expectations to the newly inflationary environment.

"Only surprises matter," argued Friedman (1977: 456) about the relationship between inflation and unemployment. In the long run, when expectations have caught up with reality, the Phillips curve is vertical[136]. With this argument both Friedman (1968) and Phelps (1968) predicted a break-down in the observed inverse relationship between inflation and unemployment, and their predictions were soon to be corroborated.

In the wake of the oil-shocks in the seventies, the industrialised world experienced both higher inflation and higher unemployment (due to a stagnating economy), a combination which has been called stagflation. This marks the second phase in the history of the Phillips curve. And it was an expensive lesson for monetary authorities, as the associated policy mistakes were partly responsible for the high inflation episode of the seventies and the expensive dis-inflationary policies that followed[137] (Romer, C.D. and Romer, 1996; Taylor, 1998b).

That the long run Phillips curve is vertical has since passed from a daring hypothesis to an uncontroversial proposition that has influenced central bank practice widely. Indeed, the adoption of the vertical long run Phillips curve was Friedman's (1977) example of critical rationalism at work in piecemeal social policy. Among academic macroeconomists, too, there is a largely unchallenged agreement on the vertical long run Phillips curve. For example, all the participants - i.e. Solow (1997), Taylor (1997), Eichenbaum (1997), Blinder (1997a) and Blanchard (1997) - in the American Economic Association's 1997 discussion on the question "Is there a core of practical macroeconomics that we should all believe?" included the vertical long run Phillips curve in their "practical core of macroeconomics." And more recently John Taylor (2000a) included the vertical long run Phillips curve in his list of "five things we know for sure" in macroeconomics.

Beyond the consensus of the second phase, a third, and more speculative phase of explorations consists of two strands: firstly, a prediction by, amongst others, Friedman (1977), that the long

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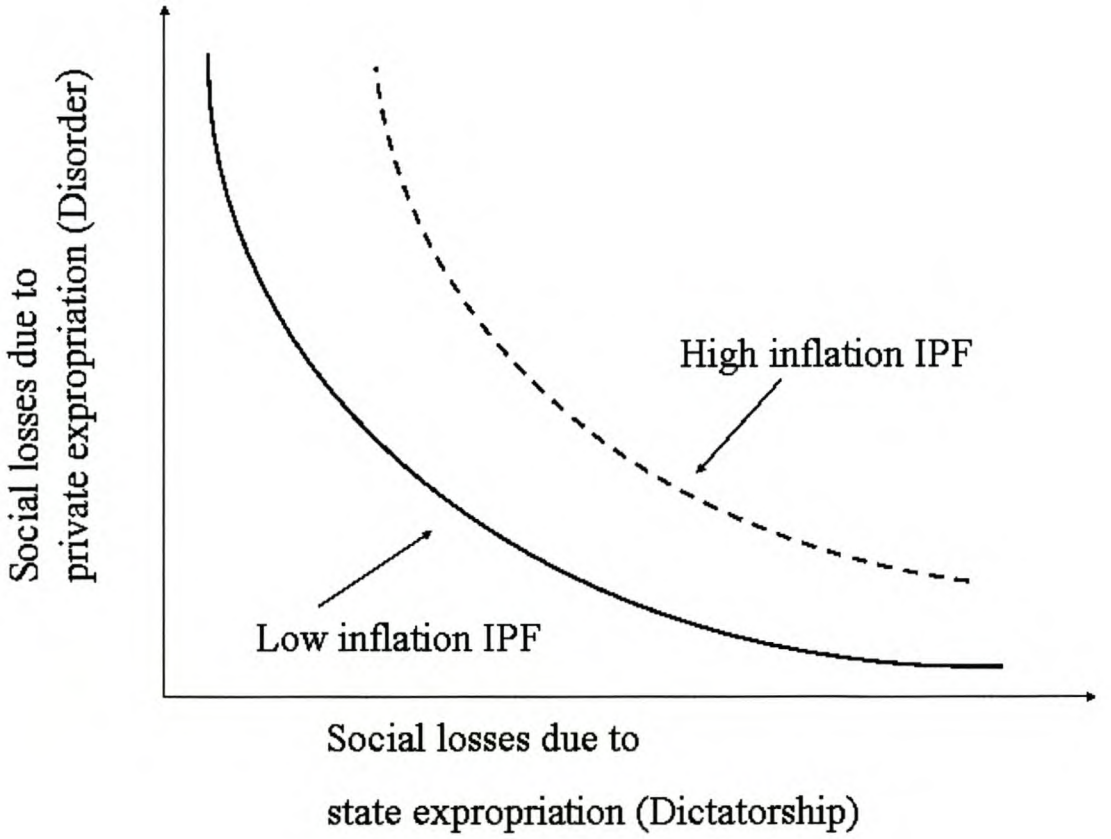
136 The vertical long run Phillips curve defines the natural rate of unemployment, i.e. that rate of unemployment which is due to the real factors in the economy (for example, the efficiency of the labour market, market structure, the incentive matrix and so on) and not due to monetary disturbances.

137 Romer and Romer (1996) have argued that the monetary accommodation of the aggregate supply shocks during the seventies would have been unlikely if monetary authorities had known then what we've learnt since, that is: that there was no long run trade-off between inflation and unemployment and that even moderate inflation came at a heavy cost to the economy.

run Phillips curve was slightly positive, i.e. that inflation harmed employment in the long run. Behind this hypothesis is the institutional and public choice literature which emphasises the unsettling effect of unstable money on the real economy[138]. Using the schema of Djankov, et al. (2003) this hypothesis suggests that inflation shifts the institutional probability frontier (IPF) outward as shown in figure 3.3., that is: high and variable inflation erodes what Djankov, et al. (2003) called "civic capital" as it undermines the capacity for decentralised cooperation.

*Figure 3.3 The institutional possibility frontier for high and low inflation*




Though this hypothesis remains somewhat controversial, it has received increasing econometric support[139], for example by Fischer (1993), de Gregorio (1993; 1996), Barro (1995) and the literature summarised in Agénor (2000a). Despite this empirical support the econometrics do not establish a causal link running from higher inflation to lower growth. The same empirical

[138] The literature on the potentially inverse relationship between inflation and long run growth emphasises the role of inflation as an indicator of macroeconomic instability and of an inefficient tax system leading to financial repression. Inflation could affect growth adversely through both of these channels (Agénor, 2000a).

[139] Mishkin (2000c) summarises the literature by claiming that despite remaining empirical puzzles there is already a "consensus that inflation is detrimental to economic growth, particularly when inflation is at high levels."

association could, for example, be caused by supply shocks. Nevertheless, one strong conclusion can be drawn from this literature, that is: "inflation is not good for longer-term growth" (Fischer, 1995b: 23).

A second strand of recent theorising on the Phillips curve has focussed on the short run relationship between inflation and unemployment. Sargent and Wallace (1975) demonstrated that the short run trade-off disappeared, too, if the expectations augmented Phillips curve of Friedman (1968) and Phelps (1968) was combined with the rational expectations hypothesis[140]. In their model, rational (or model-consistent) expectations prevent systematic monetary policy from bumping labour off its supply curve. Consequently, there would not be any trade-off between inflation and unemployment in either the long or the short run. This controversial argument has become known as the policy-irrelevance-hypothesis. Though this hypothesis is, on the existing evidence, apparently false (see for example Walsh, 1998), it has contributed greatly to the emphasis on the credibility of policy and the importance for central bankers to explain their policy decisions systematically with a transparent communications strategy.

In summary, the Phillips curve has had a major impact on the practice of monetary policy since the fifties. The present consensus is that there is no long-run trade-off between inflation and unemployment, with the practical implication that monetary policy cannot be used to pursue a real target (lower unemployment or higher per capita growth) in the long run. Less certain is the suggestion that the long run Phillips curve may be slightly positive, and even more speculative (indeed, probably false) is the idea that the Phillips curve is vertical in the short run, too.

#### 3.2.1.2 Consistent policy commitments

Kydland and Prescott (1977) first demonstrated how the possibility of dynamic inconsistency arises from the Phillips curve and generates a potential inflationary bias in monetary policy[141]. In their model, the monetary authorities have an incentive to use the short-run trade-off between inflation and unemployment once the private sector has believed and acted upon the policymaker's initial commitment to low inflation[142]. The underlying reason is that the monetary

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[140] Theoretical advances, like rational expectations modelling and the progress in game theoretic policy models since the sixties, have allowed economists to address issues like credibility, central bank independence and rules versus discretion analytically for the first time (Fischer, 1995b).

[141] Other early contributions to this literature were made by Calvo (1978) and Barro and Gordon (1983a).

[142] Larry Summer's (1991: 629) analogy for dynamic inconsistency appeals to the academic taste: "...it always looks good *ex post* to cancel your exams so that you don't have to grade them; the students have already studied. Likewise, it always looks good to inflate a little more than people expect."

authorities value both low inflation and high employment, and will pursue that latter, if the former has apparently been achieved. However, the private sector will soon figure out that the monetary authorities are reneging on their commitment to low inflation. Once the central bank's lack of credibility has been exposed in this way, private sector inflation expectations will rise[143]. Higher actual inflation will not be far behind, leaving the economy with higher inflation and no gain in employment[144].

The following simple, but formal, demonstration of this argument is from Mankiw (1988). Assume an economy where the difference between inflation ($\pi$) and expected inflation ($\pi^e$) is associated with a divergence of the actual level of total output (Y) from its natural level (Y*), that is the augmented Phillips curve for the economy is given by equation 3.1.

$$Y = Y^* + \alpha\left(\pi - \pi^e\right) \tag{3.1}$$

The monetary authorities are assumed to control the rate of inflation, and operate with the following loss function (equation 3.2) which summarises its preference for low inflation and high output. A parameter, ($\beta$), indicates the relative aversion that the monetary authorities have for high inflation.

$$L = \beta\pi^2 - Y \tag{3.2}$$

This simple model can be used to compare the results of committing the monetary authorities to a rule, relative to allowing discretion in setting monetary policy. Should the monetary authorities commit credibly to a rule, expected inflation would match actual inflation, and actual output would match potential output by virtue of equation 1. Also, since there are no gains from positive inflation to be had in this model the policy rule would be to generate zero inflation.

In contrast, a monetary authority with discretion would minimise its loss function, subject to the constraint posed by the long run Phillips curve. In this model, the monetary authorities take expected inflation ($\pi^e$) as given when it sets the stance of policy - and thereby inflation ($\pi$) - in the optimisation problem. Accordingly, the monetary authorities would choose a strictly positive

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[143] This happens instantaneously in a rational expectations model with market clearing.

[144] "Therefore it [the government] gains nothing from its opportunism and on average produces a worse outcome than would a government able to tie its hands" (Blanchard and Fischer, 1989: 592).

optimal level of inflation of $\alpha/(2\beta)$, which satisfies the first order condition for optimising the objective function subject to the augmented Phillips curve.

This positive observed inflation rate might, at first, surprise the private sector and cause a temporary rise in employment as labour moves off its supply curve. Over time, however, private sector expectations will incorporate the loss function of the authorities rationally. With such rational expectations, expected inflation – and eventually observed inflation - will match the optimal rate which the authorities will generate, i.e. $\alpha/(2\beta)$ with labour back on its supply curve and the unemployment rate back at the natural rate. Ultimately, discretionary policy yields the same level of output as before, but at a higher inflation rate. Using the Wicksell-Pareto unanimity test (suggested in chapter 2) commitment to the rule (and stable prices) is demonstrably preferable to discretion in such a setting.

The reason for the counterintuitive result that a rule beats informed discretion is due to the non-neutrality of money in the short run, but neutrality in the long run. Neutrality implies that the monetary authorities cannot, in the long run, gain from other goals apart from price stability. However, the short run trade-off between output and inflation means that an *ex ante* commitment by the monetary authorities to price level stability lacks credibility, i.e. the authorities have an incentive to renege on their commitment and exploit the short run trade-off, *ex post*. Accordingly, the private sector will learn, rationally, that the commitment is not credible *ex ante*, causing sub-optimally high inflation throughout. For Fischer (1995b), this tension between the desire for low inflation, and the incentive to use the short-run trade-off with unemployment through unexpected inflation, lies at the heart of the study of both modern central banking and monetary economics[145].

In the economics literature this mismatch between optimal policy *ex ante* and *ex post* has been called dynamic (or time) inconsistency. A policy is dynamically inconsistent when a policymaker will, in the future, find it optimal to change the policy which was optimal *ex ante*, without any

[145] The short run Phillips curve is not the only short run trade-off that creates potential dynamic inconsistency in macroeconomic policy. In a small open economy there is likely to be a similar short run trade-off between the inflation rate and the real exchange rate, which implies another inflation-real output trade-off in the short run (Fischer, 2001). There is a similar temptation to tax capital, once accumulated, or to erode patent rights, once new products have been developed (Kydland and Wynne, 2002). Further, even absent dynamic inconsistency, monetary authorities still face asymmetrical pressure for easing policy as the tightening of interest rates are more heavily criticised than the lowering thereof (Masson, et al., 1997).

additional information about the economy to act upon[146]. In literature, this situation is reminiscent of the trade-off that Odysseus faced as his ship approached the Sirens; against the immediate gratification of yielding to their sweet melodies weighed the longer term destruction of his ships on the rocky shoreline. Mindful of this time inconsistency, and his incentive for reneging on an initial promise to steer the safe course by turning "...a deaf ear to their singing", the Greek hero decided that he alone would face the temptresses, but only after his crew had "fastened me with tight-drawn cords that I stand immovably secured against the tabernacle of the mast..." (Homer, 1992: 129). Like Odysseus, policy makers are unable to commit credibly to the initial policy, in such a situation and monetary policy rules are "tight-drawn cords" for central banks (Blanchard and Fischer, 1989).

Kydland and Prescott (1977) interpreted dynamic inconsistency as an argument for the adoption of rules in monetary policy. Even if a rule is adopted though, a successful monetary policy regime will typically include a number of the following additional solutions to prevent dynamic inconsistency: firstly, the possibility of appointing an independent central banker that is more inflation averse than the population. Such a conservative central banker would not suffer the temptation of exploiting the short run trade-off (Rogoff, 1985). Secondly, if policy makers have long time horizons then reputation building would also prevent opportunistic exploitation of the short run trade-off[147] (Backus and Driffill, 1985; and Barro and Gordon, 1983b).

Thirdly, an explicit contract could specify penalties should policy makers deviate from their commitments (Walsh, 1995). Finally, central bank independence also counteracts potential dynamic inconsistency by relieving political pressure on monetary policy makers (see chapter 8). From his personal experience as a central banker, Mishkin (2000c) mentions that monetary

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[146] A striking feature of potential dynamic inconsistency is that it does not derive from any fickleness on the part of policy makers or the public, nor from a mismatch between the preferences of the public and the authorities. Rather, it arises because optimal monetary policy, as with many other macroeconomic policy decisions, is dependent on the response of the private sector to present and future policy decisions, i.e. expectations matter (Stokey, 2002). However, when the expected future has crystallised as history, the authorities will often be able to improve on the *ex ante* optimal policy, given the conditioned behaviour of the private sector (Kydland and Wynne, 2002).

[147] Reputation building becomes relevant when the government realises that it has to set its policy repeatedly and that its reputation would be undermined by cheating. The government's commitment to an initial plan becomes more credible in the presence of such a feedback effect on the reputation of government, which provides a disincentive for short-sighted behaviour (Blanchard and Fischer, 1989). Evidently, reputation building has both a backward looking (or historical) aspect, which is the building of a track record, as well as a forward-looking aspect, related to the incentives facing policy makers. Institutional economics has become increasingly important for policy design because of this second, forward-looking, aspect. In this recent literature the punishment strategies available to a concerned private sector (which derives from the early literature on reputation) have been complemented with an institutional focus on the incentives facing central banks (for example Jensen, 1997; Nowaihi and Levine, 1996; and Persson and Tabellini, 1993). This merger combines the reputational and contracting approaches to solving the potential time inconsistency (Beddies, 2000).

authorities are usually aware of potential dynamic inconsistencies[148], but adds that the pressure for exploiting short run trade-offs are only a step removed, i.e. in the political sphere[149]. Observations such as the latter by Mishkin explain why chapter 8 of this dissertation (on central bank independence) is balanced by chapter 9 where even greater safeguards are sought against political causes of dynamic inconsistency.

#### 3.2.1.3 The political business cycle

Whereas Kydland and Prescott (1977) demonstrated the potential lack of credibility for monetary policy due to the incentives facing a central bank, Nordhaus (1975) added a political argument with similar implications. In his famous paper on "the political business cycle" Nordhaus (1975) shows how a democratic constituency could be led by the short run Phillips curve to a policy of higher inflation on average. "Democratic myopia," Nordhaus (1975: 188) argued, is an essential problem of "intertemporal choices in democratic systems", whether analysed using his political economy model or in the game-theoretic manner of Kydland and Prescott (1977). The democratic method of electing governments with discretionary power over fiscal and monetary policy created the incentives for a pattern of initial austerity by newly elected governments followed by populism in the run-up to an election, so generating a political business cycle.

In contrast with Kydland and Prescott (1977), who argued for rules as the institutional solution to dynamic inconsistency, Nordhaus (1975) emphasised the presumption in favour of independent central banks. Below we will see how both of these policy implications have enjoyed increasing practical implementation since the late seventies.

### *3.2.2 Fiscal Biases*

The differing effects of monetary policy in the short and long run is a potential cause of inflation, whether through risk of the dynamic inconsistency, or due to the political business cycle. A second set of policy-related causes of inflation derives from various inflationary biases in fiscal

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[148] James Tobin (1998: 5) agreed strongly with Mishkin (2000c) here. Indeed he suspected that central bankers were "obsessively concerned" with the long run implications of their decisions.

[149] Dynamic inconsistency is not just a figment of theorist's imagination. Economists with considerable policy experience, for example Larry Summers (1991: 629), have argued: "the dynamic inconsistency problem is real, important, and no doubt the essence of the inflation problem." However, there are others, such as Alan Blinder (1997b), who tends to downplay the practical significance of dynamic inconsistency, on the argument that central bankers are all too aware of potential dynamic inconsistency. Blinder's argument does not, however, address Mishkin's observation that the inconsistency is due to political pressure, as opposed to either the incompetence or ignorance of central bankers.

policy. These are not as subtle as the concept of dynamic inconsistency and Marco Polo's good sense let him down when he equated the fiscal capacity of the Khan's monopoly on fiat money with the then respectable science of alchemy. Of course, with the modern perspective on alchemy, his comparison gets it just right. The fiscal bias towards inflation revolves around the idea of inflation taxes and seigniorage revenue, unindexed tax brackets, and a lowering of the real cost of the national debt in the case of unanticipated inflation (Fischer, 1995b).

#### 3.2.2.1 Seigniorage and the inflation tax

As long as the central bank is part of the consolidated public sector, the government has access to seigniorage as a source of revenue, where seigniorage is defined as the real resources that the government can appropriate through the act of base money creation (Agénor and Montiel, 1999). A government with a monopoly over money can always acquire real resources to the extent that base money expands more rapidly than inflation, or as Keynes (1924: 46) observed on the eve of the Continental hyperinflation following Versailles:

> "A government can live for a long time... by printing paper money. That is to say, it can by this means secure the command over real resources, resources just as real as those obtained by taxation. The method is condemned, but its efficacy, up to a point, must be admitted..." (Keynes, 1924).

Seigniorage is, historically, one of the chief reasons for the state's monopoly on the issuance of money. Money is not a natural monopoly, nor has it led to monopolies historically, except through the intervention of governments with the explicit purpose of capturing seigniorage (Hayek, 1979). By creating a monopoly right to issue money, the state linked monetary and fiscal policy through the government's budget constraint.

Seigniorage functions as a tax on the domestic currency balances of the private sector, and can be disaggregated into an inflation tax component and a component which reflects the change in real money balances held by the private sector in response to inflation. The latter falls away in equilibrium, leaving an equality between seigniorage and the inflation tax (Agénor and Montiel, 1999). Given fiscal dominance[150], a change in the balance of government's expenditure, taxation or debt, therefore, has an implication for monetary policy which can be calculated through analysis of the government's intertemporal budget constraint (Sargent and Wallace, 1981; and Walsh, 1998).

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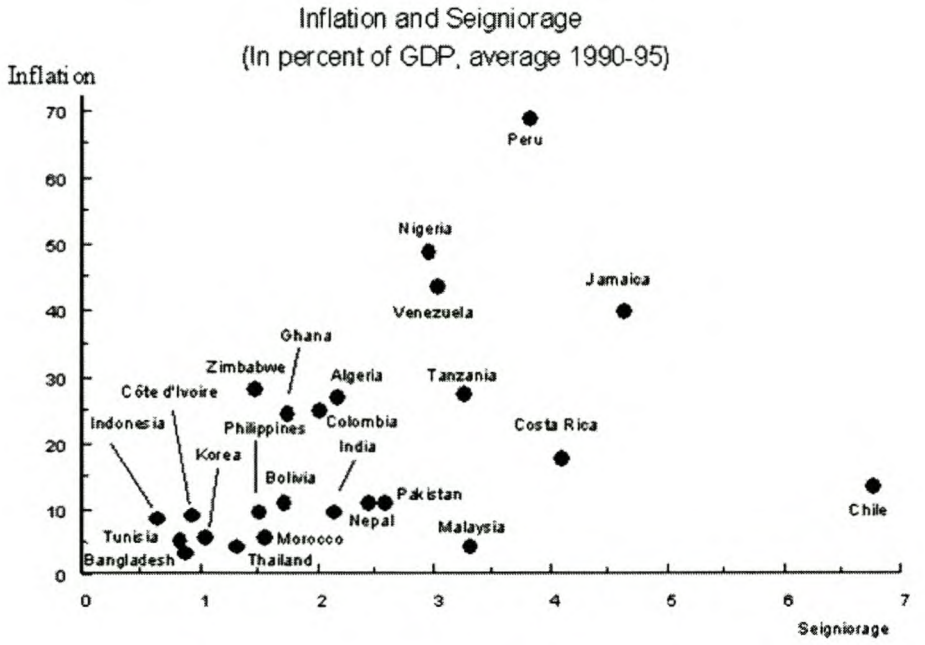
[150] A situation, common in developing countries (see for example, Agénor and Montiel, 1999), whereby the monetary authorities can ultimately be forced to secure balance of the government's intertemporal budget (Walsh, 1998).

Developing countries have resorted to the inflation tax much more prodigiously than industrial countries in recent decades, with the majority of developing countries capturing resources in excess of 1% of GDP per year through the inflation tax. This trend is explained by the smaller tax base and relatively inferior revenue collection system in developing countries (Agénor and Montiel, 1999). Figure 3.4 demonstrates the positive association between the resort to seigniorage revenue and observed inflation in developing countries. It also demonstrates the important limit to seigniorage revenue (as hinted at in the quotation by Keynes above). Since the inflation tax is a tax on money balances, and the demand for money balances is inversely related to the expected rate of inflation, the inflation tax becomes counterproductive when pushed to higher levels[151]. From the graph it seems as if the counterproductive effect of seigniorage has lately prevented governments form capturing much more than 3-4% of GDP per year through the inflation tax.

*Figure 3.4 Fiscal influence on the outcome of monetary policy*




Source: Agénor (2000a, figure 5.3)

[151] The Olivera-Tanzi effect is another revenue reducing effect of inflation, and refers to the erosion of the real value of nominal taxes due to the collection lag. Since nominal taxes – especially on trade – are important in developing countries and collection lags longer due to administrative capacity, this is an important cost of inflation for developing country governments (Agénor and Montiel, 1999).

Unindexed capital gains tax, and unindexed nominal income tax brackets, are further potential sources of inflationary bias caused by government's exclusive right on the issuance of money[152]. In the South African case, for example, capital gains are not indexed for inflation before the tax is calculated (Grote and Fletcher, 2000), creating a clear incentive for government to inflate the price level, other things being equal.

In summary, there are a number of potential sources for inflationary pressure – collectively referred to as an 'inflationary bias' – in the unbacked fiat-money system that is typical of most modern economies. Whereas an important part of the inflationary bias originates in government's fiscal policy, the incentives facing central bankers can also contribute to the bias. The adoption of explicit targets for monetary policy is aimed at solving the latter, whereas the central banks are given independence from fiscal pressure to solve the former[153]. Taken together, these are steps to enhance the credibility of the central bank's commitment to deliver low inflation.

## 3.3 CONTROVERSIES BETWEEN MONETARISTS AND KEYNESIANS

### *3.3.1 A brief history of the controversy*

Monetarists – especially Milton Friedman (for example, Friedman, M., 1968) – led the way in emphasising the following points about monetary policy[154]: firstly, an explicit recognition of the policymaker's uncertainty both as to the state of the economy and about the effect of policy changes on the economy. Secondly, recognition that the criterion for good policy is not whether it is best in any specific circumstance, but whether it is best in general, i.e. emphasising robustness[155]. Thirdly, stabilisation policy should be aimed at lowering volatility, not closing output gaps. And finally, monetary policy is a very powerful tool that affects both nominal and real variables. These points are, nowadays, emphasised by monetarist and Keynesian economics

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[152] For Fischer (1995b: 14) "the most important source of institutional non-neutrality to inflation is the tax system; within the tax system it is the taxation of capital that is most distorted by inflation."

[153] The co-ordination of fiscal and monetary policy is also important. Prudent fiscal policy adds greatly to the success with which monetary authorities can pursue low and stable inflation (Mishkin, 2000c).

[154] The list is from de Long (2000).

[155] Such a robust policy would pass the Pareto-Wicksell criterion, in contrast with policies designed to be optimal under specific conditions.

alike, to the extent that de Long (2000) speculated that "New Keynesian" economics could equally be called "New Monetarist" economics.

This section considers, briefly, how the present consensus was reached, without attempting a comprehensive account of the controversies that marked the macroeconomic debate during the twentieth century[156].

Bradford de Long (2000) has suggested a four stage history of monetarism during the twentieth century. Accordingly, the first stage of monetarism was centred on Irving Fisher's transformation of the (much older) quantity equation into a tool for macroeconomic analysis. This "first monetarism" had a tendency for overly rigid application and it was against the almost mechanistic application of the quantity theory that Keynes (1923) protested with his famous quip that "in the long run we are all dead." Monetarist of later vintage, for example Friedman (1956), were no less opposed than Keynes to the policy paralysis which followed from the "atrophied and rigid caricature" which monetarism had become in the inter-war period.

Meanwhile, a second stage of monetarism was developing at the University of Chicago with the work of Simons, Viner and Knight. Friedman has referred to this movement as the "Chicago oral tradition" but de Long (2000) prefers "Old Chicago" monetarism. This phase of monetarism was characterised by a sharp criticism of government mistakes in monetary and fiscal policies, not because these policies were irrelevant, but because they mattered greatly. The Old Chicago monetarists also emphasised that the velocity of money was not constant, and that control of the money supply would be very difficult, or perhaps impossible, given the institutions of the time (Simons, 1936).

A third phase of monetarism, called Classic monetarism by de Long (2000), evolved from the Old Chicago monetarism through the work of Milton Friedman in particular, but also many others like Schwartz, Brunner and Meltzer. Classic monetarism contributed empirical investigations into and demonstrations of *inter alia* the following issues: the stability of the demand for money; the difficulties of stabilisation policies given the long and variable lags of policy transmission; rules rather than discretion, and the robustness of certain rules; an optimistic evaluation of the outcomes of market economies; the power of monetary policy; and finally,

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156 Uncontroversial surveys of this vast literature include Blanchard (2000) and Fischer (1991 [1988]).

Classical monetarism contributed to the dramatic erosion of economists' belief that the multiplier exceeds unity.

In addition to these scientific issues, Classic monetarism argued forcefully against an extensive role for the government in stabilisation policy with an argument built around two themes, one positive and the other negative. The latter is the argument that the necessary ignorance of policy makers should lead to modesty about the their likely success in achieving stabilisation goals, while adding the caution that, in the attempt, they may cause actual harm through the unintended consequences of their policies (Friedman, M., 1968). Monetarist – and especially public choice economists - also feared government success though, in the form of policies successfully working in the interest of politicians or bureaucrats (Buchanan, 1999 [1979]).

Through the fifties and sixties, Classic monetarism was an influential dissident view, but decidedly dissident. The mid to late seventies turned the tables on Keynesian macroeconomics though[157]. There are a number of important reasons for this turnabout, including the theoretical force of the analysis behind Friedman's first prediction (on the Phillips curve); the new theoretical insights of rational expectations; and combined with these theoretical developments, the simultaneous empirical verification of Friedman's prediction (and the embarrassment of Keynesian predictions on inflation and unemployment) in the aftermath of the oil shocks (Lucas and Sargent, 1997 [1978]). Both the theoretical framework and the policy bias of Classic monetarism remain highly influential in modern macroeconomics.

A final strand of monetarism is the unsophisticated version of Classical monetarism which gained public prominence as a political doctrine in the late seventies and has, hence, been called "Political" monetarism by de Long (2000). For example, Political monetarism substituted the assertion that the velocity of money was stable for the more sophisticated analysis of how the velocity of money could be rendered stable[158]. Political monetarism had a brief ascent during the eighties, but an even more rapid decline, both internationally and domestically, since then.

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[157] The change in professional allegiance was very dramatic. Some, like Blinder (1997 [1988]: 109), lamented that "by about 1980, it was hard to find an American academic economist under the age of 40 who professed to be a Keynesian." There was less lamenting amongst monetarist and classical economists. A representative opinion of this last groups is Lucas and Sargent's (1997 [1978]: 270) argument that, for economists, the realisation that "...[Keynesian] predictions were wildly incorrect, and that the doctrine on which they were based is fundamentally flawed, are now simple matters of fact, involving no novelties in economic theory."

[158] The de Kock Commission (1985) drifted towards Political monetarism by using a graph (par. 15.48) to support the assertion that the velocity of money was, in fact, stable. The suggested stability of the velocity of money was a crucial element in the adoption of flexible money growth targets, domestically, following the de Kock commission's approach. And the eventual abandonment of money targets in favour of an inflation target was due to the observed volatility of velocity during the nineties, which made it an unreliable yardstick for policy, or so van den Heever (2001) argues.

Despite the failure of Political monetarism, the "hegemony" – as de Long (2000) calls it - of Classic monetarism remains in force on the following points: that monetary policy is very powerful; that the scope for stabilisation policy is more modest than the earlier hopes of macroeconomists; that it is better to consider the long run consequences of rules than to find optimal discretionary policies; and finally, that there is no long run trade-off between inflation and employment or growth.

Indeed, since the seventies monetarists have, to an extent, set the agenda for the macroeconomic policy debate, and with the Phillips curve and the limits of stabilisation settled, empirically and theoretically, the major outstanding issue was the question of rules versus discretion in macroeconomic policy. Franco Modigliani's (1977) summary of the debate as of the late seventies (on the occasion of his presidential address to the American Economic Association) emphasised precisely this point from a Keynesian perspective. Starting from a classical position, Lucas and Sargent (1997 [1978]: 290) agreed with Modigliani on the outstanding issue with their argument that the theoretical developments and events of the seventies "...directs attention to the necessity of thinking of policy as the choice of stable 'rules of the game', well understood by economic agents".

Though Keynesians have accepted the monetarist criticism against "fine tuning " the economy, some Keynesians still hold to the possibility of what Alan Blinder (1997 [1988]) calls "coarse tuning", i.e. the use of activist stabilisation policy, but with more modest goals than characterised the policies of the sixties. This semantic issue will be cleared up with the consideration of feedback rules in the next chapter. Chapter 4 also draws a distinction between activist and passive rules, which shows that the modern debate in macroeconomics does not centre on a binary choice between rules and discretion, but between discretion and a range of rules, only some of which are passive in the Friedman sense.

### *3.3.2 The effect of the debate on monetary policy in practice*

While the academic debate had been proceeding, central bankers also incorporated the results of the debate, especially on the following four points (see for example Fischer, 1995b; Friedman, B.M., 2000; Sterne, 1999): firstly, they emphasised the importance of credibility to the success of monetary policy; secondly, the increasing use of explicit policy targets; thirdly, central bank

independence and, finally, the use of feedback rules. These four trends are considered below. Whereas explicit policy targets and feedback rules concern the conduct of monetary policy, credibility and central bank independence concerns the supportive institutions of a monetary policy regime. The four points chosen as practical lessons from theory and practice of recent years reflect, therefore, the claim by Romer and Romer (1996) that improvements in policy performance require attention not only to policy specifics, but also, and sometimes more importantly, to supportive institutions.

#### 3.3.2.1 Credibility

One of the most important effects of the theoretical advances since the fifties, and the practical experience with monetary policy, has been an increasing recognition that the credibility of monetary policy is a crucial pre-condition for its success. Accordingly, the pursuit of credibility has risen to the first order of priorities at central banks. Indeed, the rising popularity of inflation targeting is associated, in part, with its potential for enhancing the credibility of the monetary policy framework (Friedman, B.M., 2002).

Alan Blinder (1999) recently reported on an interesting survey of central bankers and monetary/macroeconomists on the issue of monetary policy credibility. Blinder (1999: 4) offers a working definition of "credibility" as: "...a central bank is credible if people believe it will do what it says." Stanley Fischer's (1995b: 4) definition is more technical and though it conveys largely the same message, it adds important detail, about which more in subsequent chapters: "...a policy is credible when the private sector believes it will be carried out, and when it is correspondingly in the interest of the public sector to carry out the policy once the private sector has acted on its beliefs." Fischer's emphasis on the effect of the incentives for policymakers when they try to commit credibly to a policy is a recurring theme in the modern literature on central banking, and reminds of the criterion of incentive compatibility for efficient institutions discussed in chapter 1.

Though the economists and central bankers in Blinder's survey disagreed on the exact content of the concept of credibility, there appears to be little disagreement on the importance for central banks of gaining credibility. A list of the benefits of credibility which causes it to be so sought after include (Paulin, 2000; Svensson, 1999a): firstly, by anchoring inflation expectations, credible monetary policy eliminates unsettled expectations as an important monetary shock to the economy. Secondly, the trade-off between inflation variability and output-gap variability can

become more favourable for the same reason. Thirdly, stable inflation expectations imply a more direct route through the monetary transmission mechanism for changes to the stance of monetary policy[159]. Finally, since improved credibility implies expectations consistent with the long run goals of policy, building credibility also means limiting the need for policy intervention as Don Brash (former Governor of the Reserve Bank of New Zealand) argued:

> "One useful consequence of this approach to the operation of monetary policy is that we rarely actually do anything other than publish inflation projections, and occasionally comment on the evolution of market conditions relative to those assumed in our projections. So long as market participants understand our policy reaction function, believe that we will act consistently with that reaction function, and accept that we have the capacity to inflict some bottom-line pain when taking action, then their incentives are to anticipate the monetary conditions consistent with our inflation target, and trade accordingly...the fact that financial markets very largely implement policy for us is demonstrative of the power of that transparency." (Brash, 1996: 130, 138)

Nor was there much disagreement on how credibility is established. Both groups ranked the factors contributing to credibility in the following order: living up to your word; independence for the central bank; history of fighting inflation; openness and transparency; and the ability to withstand fiscal pressure (Blinder, 1999: 15-19). There does not appear to be any shortcuts to credibility, rather Blinder (1999: 21) concluded that "...central banks get their credibility the old-fashioned way; they earn it by building a track record for honesty and inflation aversion (in that order of importance)"[160]. However, central banks have enhanced the pace of acquiring credibility by combining the use of explicit and narrow targets with clear explanations of outcomes. Transparent and convincing explanations prevent the occasional poor outcomes from undermining the credibility of the policy framework (Sterne, 2001). Chapter 5 describes how inflation targeting is precisely a framework that aims to earn credibility by encouraging "good behaviour" at the central bank.

Both the central bankers and the economists in Blinder's (1999) survey associated the credibility of monetary policy closely with the honest and transparent dedication of the central bank to fighting inflation. Ben Friedman (2002: 16) has recently analysed the historical and theoretical context within which credibility has come to assume such prominence and traced the effect of

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[159] The reasoning is: if inflation expectations are stable, then a change to the short run nominal interest rate translates more predictably into change of short and long run real term interest rates and, ultimately, the output gap. In this way, credibility makes the transmission mechanism somewhat more stable and direct (Svensson, 1999a).

[160] Blinder (1999) de-emphasises the role of commitment technologies or incentive compatible contracts in the process of building credibility. This seems to be a disagreement of words though: in practice central banks have used these devices (like central bank independence, rule-like policy frameworks and so on) even if they do not describe themselves as using "commitment technologies" and "incentive compatible contracts."

that context on the use of the term "credibility" in the academic debate and in the practice of monetary policy. Accordingly, he argues that it was the literature on dynamic inconsistency that gave impetus to this concern with credibility[161]. In that literature "credibility" means not just that the authorities are able to commit to some target, but more specifically, that the authorities are able to commit to a low inflation target[162]. Furthermore, inflation expectations can in this context be used (and often *is* used) as an empirical measure of the central bank's credibility[163]. This ready measure of credibility is one of the forces working in favour of the adoption of explicit nominal anchors, such as inflation targets (Svensson, 1999a).

In light of the importance of credibility it is not, therefore, surprising that central banks have increasingly adopted price stability as an explicit goal of monetary policy over the last decade and more. Even those central banks with alternative explicit targets - like money supply growth - often use these targets instrumentally in their fight against inflation. The quest for central bank credibility reflects the explicit recognition by central bankers (as by economists) that low and stable inflation is, in the long run, the most important contribution that monetary policy can make to the material advance of society (Fischer, 1995b). And the increasing adoption of explicit inflation targets (discussed below) serves both to give content to the concept of credibility and to provide a yardstick for measuring that credibility (Sterne, 1999).

#### 3.3.2.2 Explicit targets

Though there are many potential explicit targets for monetary policy they are, in practice, restricted to targeting the growth of the money supply (money targeting), targeting the inflation rate (inflation targeting) or targeting the nominal value of the exchange rate[164] (Groce and Khan, 2000). This narrow range of alternatives is familiar from Friedman (1968) and the subsequent empirical demonstration that monetary policy cannot, in the long run, pursue real variables as

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[161] Fischer (1995b: 33) agrees that the concept of credibility was first clearly defined in the dynamic inconsistency literature.

[162] Friedman's (2002) hermeneutic analysis is, therefore, a further explanation of why inflation targeting is readily connected with the pursuit of credibility.

[163] Under inflation targeting, Blinder's and Fischer's definitions of credibility implies private sector inflation expectations in line with the forecast target. A gap between such expectations and the forecast target is therefore an obvious measure of the lack of credibility for the monetary policy framework (Svensson, 1999a). To this end, the SARB, as other inflation targeting central banks, include surveys or other measures of inflation expectations (for example from the yield curve) as part of their inflation reports.

[164] Combinations of these three pure regimes are also common, though the ability of a regime with conflicting nominal targets to act as a nominal anchor is increasingly in doubt.

objectives. Given that monetary policy cannot pursue any nominal targets directly either[165], the range of possible explicit targets for monetary policy is restricted to intermediate nominal variables, like the money supply, forecasted inflation or the nominal exchange rate.

The Bank of England recently conducted a survey of the monetary policy regimes of 91 central banks (Sterne, 1999). This survey revealed a dramatic development in the conduct of monetary policy internationally during the nineties: whereas just more than a half (55%) of the central banks defined explicit targets for monetary policy in 1990, all but 4 (96%) of the surveyed central banks had adopted explicit targets by 1998.

Regardless of the academic debate on rules versus discretion in monetary policy, a remarkable convergence has, in practice, occurred on the adoption of rules (albeit, rules of varying degrees of flexibility) (Paulin, 2000). Of the 87 central banks with explicit targets, 54 had inflation targets and of these, 13 had no other target but inflation[166]. With the exception of Spain (on joining the EMU) no country has discontinued an explicit inflation target during the nineties[167], whereas a number of countries either abandoned a money target or was forced to drop an exchange rate target (often due to an exchange rate crisis) (Sterne, 1999). Figure 3.5 shows the progressive adoption of various explicit targets over the course of the nineties.

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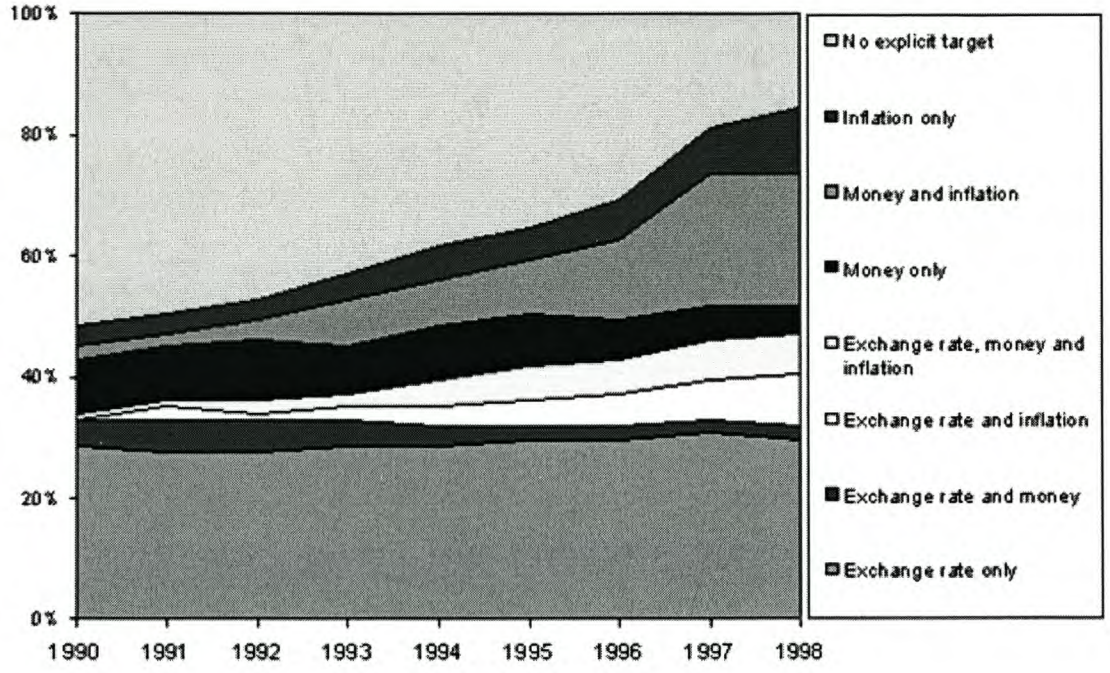
[165] The nominal interest rate is the exception. Though the central bank could fix the nominal interest rate – as did the Federal Reserve Board in the immediate post-War era – this is a poor intermediate target, since it provides no anchor for inflation expectations, and hence none for the price level.

[166] This is a minimum requirement for what is generally seen as inflation targeting (Mishkin, 2000b). Since 1998, a number of countries have joined this group with explicit inflation targets as single goal for monetary policy, including South Africa in February 2000.

[167] Before the nineties, the only historical experience with inflation targeting was the successful implementation of inflation targeting in Sweden during the 1930s (Persson and Tabellini, 1993).

*Figure 3.5 The increasing adoption of explicit targets for monetary policy*




Source: Data from Sterne (1999)

This trend towards the increasing use of explicit intermediate targets for monetary policy represents the latest phase in the evolving effort of monetary authorities to establish credible nominal anchors in the post-Bretton Woods era. These intermediate targets help to build credibility by giving content to the policy maker's long term commitment and it prevents (domestic or international) shocks from raising inflation permanently (Groce and Khan, 2000).

Even when an explicit target is missed, the targeting regime provides a framework for explaining the deviation, with a strategy that Mervyn King (1996: 444) called "teaching by doing" by the central bank[168]. This contributes greatly to the transparency (and, hence, the accountability) of monetary policy (Paulin, 2000). In addition, explicit targets help to define the institutional relationship between the central bank, government and private sector (*and* the IMF for those developing countries on IMF programmes) in the monetary policy regime (Sterne, 1999).

Explicit targets need not be interpreted rigidly in the manner of, say, Friedman's k-percent rule, though. For example, money targets have often been used only as a guideline for policy and a benchmark for the explanation of the policy stance to the public. Inflation targets, too, have been

[168] Sterne (1999 278) concludes from the empirical evidence that: "policy makers use explicit targets because they find that it is better to have narrow objectives and explain misses, rather than having imprecise objectives that make success or failure difficult to measure."

flexible, but tracked with a smaller deviation than money targets[169]. Exchange rate targets have been adhered too more strictly, at least as long as the regime holds. Though not perfect, the tracking of, especially inflation targets, has been very accurate and unbiased for countries with low inflation targets. In contrast, countries with higher inflation targets have tended to overshoot the targets more regularly (Sterne, 1999).

As a historical matter, then, the adoption of explicit targets has not implied a move to stark "rules" for monetary policy, but rather a move to a systematic framework for monetary policy that allows flexible implementation and transparent communication of policy decisions. Such a systematic framework is rule-like as will be discussed below and in chapter 4 on feedback rules.

#### 3.3.2.3 Central Bank independence

There is a large literature on the many facets of central bank independence and these are considered more fully in chapter 8 (especially the difficulties in measuring such independence in developing countries). What is at stake in this section is the empirical trend to greater independence for central banks, and its basis in the inflationary biases discussed above.

There are a number of theoretical reasons, and a strong empirical case, for independent central banks. The empirical case is the robust empirical association between low inflation outcomes (at no cost in terms of economic growth) and central bank independence (Fischer, 1995b; Friedman, B.M., 2000; and Summers, 1991). Figure 3.6 shows the inverse relationship between inflation over the long run and a measure of central bank independence for industrialised countries (employing the widely used GMTAS index[170] of central bank independence), while figure 3.7 shows that this institutional innovation came at no cost to growth[171] (see also Alesina and Summers, 1993). On the contrary, there may even be a weak negative association between

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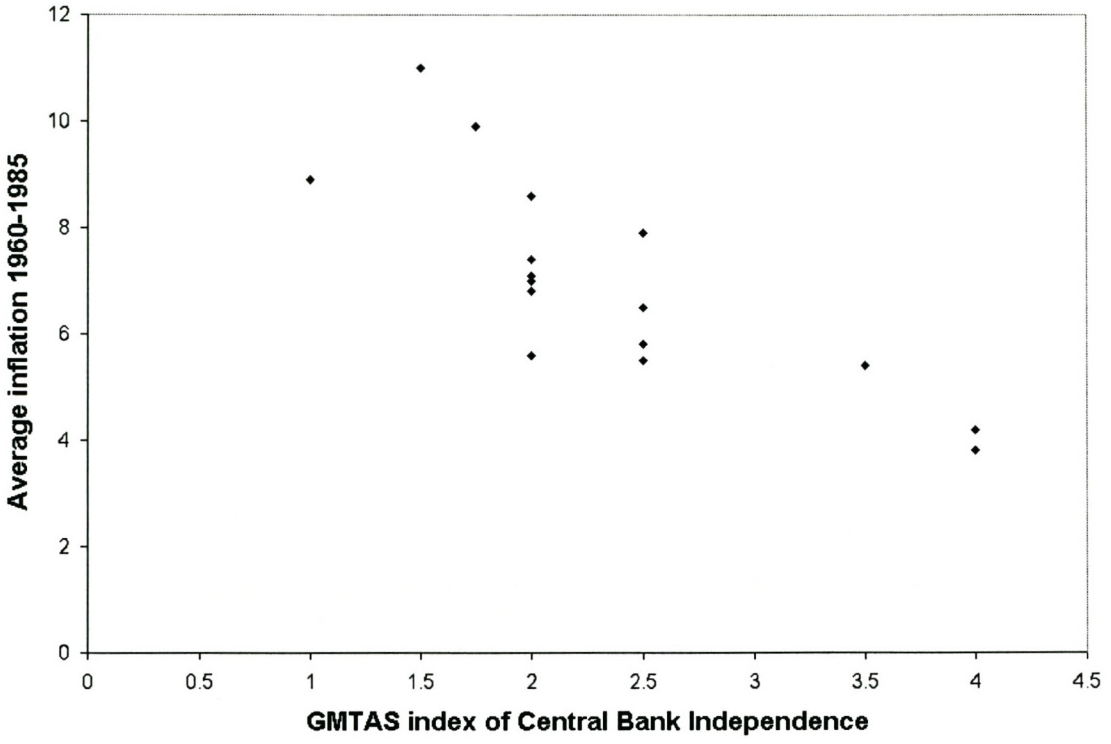
[169] Central banks have enjoyed considerably more success in adhering to explicit inflation or money targets during the nineties than would have been expected on the basis of prior evidence. Where inflation targeting is concerned the outcome was within a +/- 1.5% range for 50% of the time. For those countries with a lower inflation target (smaller than 3.5%) the corresponding range was a much narrower +/- 0.8%. Money targeters enjoyed less accuracy than inflation targeters, but still more than would have been excepted on the earlier evidence (Sterne, 1999).

[170] The GMTAS index is calculated by combining the economic and political measurements of independence as per Grilli, Mascardiano and Tabellini (1991b) and extended by Alesina and Summers (1993).

[171] Alesina and Summers' (1993) results have been very important, as it undermined the hypothesis of a trade-off between flexibility and credibility for monetary authorities. On their evidence, the increased credibility of an independent central bank came at no cost – in terms of more volatile output fluctuations, or lower growth – which could have been attributed to diminished flexibility (Beddies, 2000). For Fischer (1995b) the "... most striking result of the empirical work is that CBI seems to have *no* adverse consequences" (Fischer, 1995b: 46 emphasis in the original).

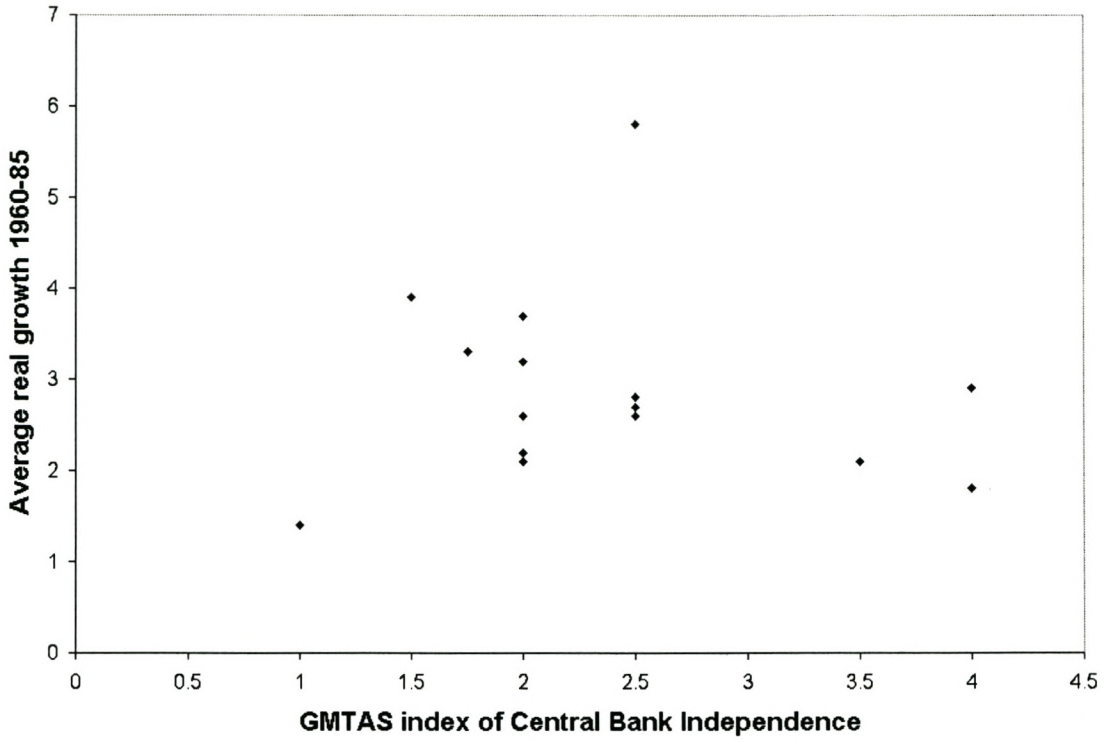
inflation and growth, though the data in figure 3.8. is too sparse to provide any information either way.

*Figure 3.6 Inflation and central bank independence*



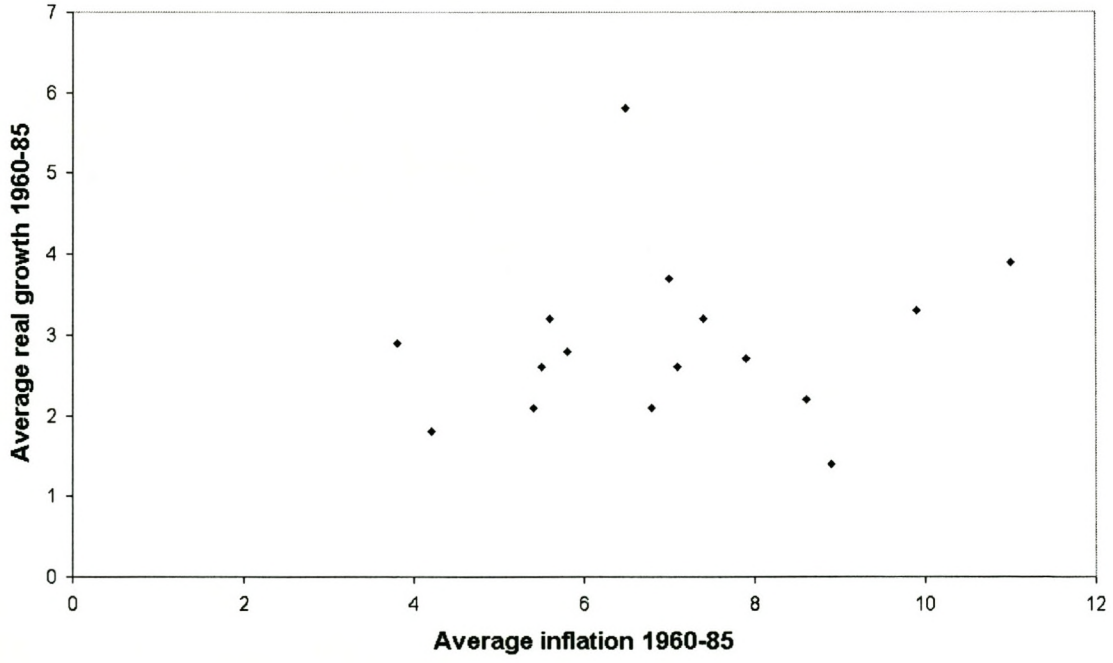

*Source: data from de Gregorio (1996)*

*Figure 3.7 Growth and central bank independence*




Source: de Gregorio (1996)

*Figure 3.8 Inflation and growth*




Source: data from Sachs and Warner (1997)

While the salutary effect of independent central banks on inflation is well established for developed countries, the proposition has, until lately, been more controversial for developing countries. Cukierman (1992) raised the issue by demonstrating that the negative relationship - between inflation and a measure of central bank independence - was weakened when the set of countries was broadened to include developing countries. Subsequently, Fuhrer (1997) and King and Ma (2001), amongst others, have added to the doubt that the relationship extends to developing countries. More recently, though, Brumm (2002) has found that the strong inverse relationship held also for developing countries when the econometric shortcomings of earlier studies had been resolved. This empirical literature is discussed more extensively in chapter 8.

The theoretical arguments for central bank independence are institutional and derive from the potential role of an independent central bank as a supportive institution in a monetary policy regime subject to the risks from the various inflation biases inherent in a fiat money regime, including dynamic inconsistency[172], the political business cycle and the various fiscal biases (for example seigniorage and unindexed capital gains tax) (Alesina and Summers, 1993; and Paulin, 2000). Nor is the government the only threat to prudent monetary policy, as heterogeneous preferences of the public could also give rise to an inflationary bias, via a distributional struggle (Faust, 1996). Granting independence to the central bank removes the political pressure (both from the government and the public) that biases policy towards inflation (Alesina and Summers, 1993).

Central bank independence is not only defined relative to government pressure, but also relative to market pressure. Alan Blinder (1997b) has argued that financial markets often suffer from a short term decision horizon, and though market analysts often get the direction of influence right, they tend to recommend exaggerated responses. Though this is an empirical point on which Blinder has not yet furnished compelling evidence, it is clear in principle that monetary policy decisions are best isolated both from political and market interference.

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[172] The inverse relationship between observed inflation and central bank independence (as shown here, and in the literature) is *prima facie* evidence of the importance of dynamic inconsistency as a source of high inflation, or so claimed Christina and David Romer (1996).

Friedman (1968) demonstrated that, in time, society ends up worse off if monetary policy is subjected to short run considerations[173]. As mentioned above, there is now broad a consensus in macroeconomics that there is no long-run trade-off between inflation and unemployment, while there may well be a short-run trade-off). The contemporary consensus on the goals of monetary policy, combined with the observation that an independent monetary authority may be able to commit more credibly to a long-run anti-inflation focus, is at the heart of the case for independent central banks. And this consensus has contributed greatly to the rising popularity of inflation targeting as a framework for monetary policy in developed and developing countries (Fischer, 1995a). Along the same lines, Dornbusch (2000) has argued emphatically for the need for independent central banks in an era of fiat money:

> "...money has been taken out of the hands of politicians who have mismanaged it for the better part of this century. The ECB is a monument to the proposition that money is too serious to be left to politicians: in these matters, there is no such thing as a responsible politician; democratic money is bad money...the vast change in public understanding of hard money, and the resulting stability and lengthening of horizons, is a great accomplishment at the tail end of monetary turmoil" (Dornbusch, 2000: 15-16).

#### 3.3.2.4 Feedback rules

Though a "stark" rule solves the dynamic inconsistency problem it is generally sub-optimal, since it does not allow flexible responses to shocks (King, M.A., 1997). However, a state-contingent "rule" (or contingency plan) solves the dynamic inconsistency problem optimally (Blanchard and Fischer, 1989). In so far as inflation targeting is such a state-contingent rule, it fits the description of a rule-based solution to the dynamic inconsistency problem. The reasonableness of this association of inflation targeting and state-contingent rules is examined in chapter 5.

The increasing use of feedback rules in monetary policy expresses another lesson from the theory and practice of monetary policy since the seventies, i.e. that monetary policy should be forward looking (Mishkin, 2000c). Indeed, the necessity for forward looking policy was clear from Friedman's (1968) emphasis on the long lags of monetary policy combined with the increasing recognition of the importance of expectations in macroeconomic relationships. To prevent

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[173] There is no denying that there are winners even in the chaos of hyperinflation, though it is doubtful that anybody can count on winning in the long run given the arbitrariness of the ensuing social disintegration. Keynes (1924: 220) described this dynamic eloquently in the *Economic consequences of the peace*: "By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate *arbitrarily*; and, while the process impoverishes many, it actually enriches some. The sight of this arbitrary rearrangement of riches strikes not only at security, but at confidence in the equity of the existing distribution of wealth. Those to whom the system brings windfalls, beyond their deserts and beyond their expectations or desires, become 'profiteers', who are the object of the hatred of the bourgeoisie, whom the inflationism has impoverished, not less than of the proletariat."

inflationary pressure from embedding in inflation expectations, and eventually observed inflation, monetary policy must be set pre-emptively. Once inflation gathers momentum, disinflation is likely to take longer and be more costly, in terms of output losses[174] (Mishkin, 2000c).

At the close of the twentieth century, best practice in monetary policy had come a full circle, with a broadening consensus on the merit of rules, albeit in the form of feedback or state-contingent rules. Contra to the mechanistic rules of an earlier vintage these modern rules are, as Michael Woodford (2002a: 3) argued "...principles of systematic conduct for institutions that are aware of the consequences of their actions and take responsibility for them..."

In chapters 5 and 7 the consistency of inflation targeting with the theoretical and practical lessons of democratic money will be shown. This relatively new framework for monetary policy passes each of the following criteria on the check list for sound central banking that Mishkin (2000c) derived from the theory and experience described in this chapter, that is: firstly, that price stability should be the primary goal of monetary policy in the long run; secondly, that the monetary policy framework should be built around an explicit nominal anchor; thirdly, that the central bank should enjoy instrument independence; fourthly, that the central bank should be goal dependent[175]; fifthly, that accountability should be built into the monetary policy framework, especially with, sixthly, a focus on transparency and communication[176]. But before these issues are considered in chapters 5, 7 and 8 the next chapter considers the nature of state-contingent (or feedback) rules, capturing the final lesson from the theory and practice of monetary policy mentioned in this chapter, but also providing the theoretical background for the subsequent discussion of inflation forecast targeting.

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[174] Blinder (1997b: 9) warns that the long lags of monetary policy leads to overly activist policy when the authorities follow a strategy of "looking out the window" instead of following a forward looking strategy. The former strategy is one of judging the state of the economy at each decision point and adjusting the setting of the policy instrument accordingly. Such a strategy leads to overreaction both on easing and tightening, if there are long lags in the transmission mechanism.

[175] Chapter 8 considers Debelle and Fischer's (1994) distinction between goal and instrument independence in detail.

[176] Mishkin's (2000c) final criterion, i.e. that the central bank should additionally have the goal of ensuring financial stability transcends the particular monetary policy framework which is at stake in this dissertation.

# PART II INFLATION TARGETING AS A FRAMEWORK FOR MONETARY POLICY

## CHAPTER 4 RULES AND DISCRETION IN MONETARY POLICY

Mervyn King (2000) tells the story of how - shortly after having joined the Bank of England - he was in a position to petition advice of the "how to be a central banker" sort from Paul Volcker. Apparently the former Federal Reserve Board chairman answered tersely: "mystique". That was in 1991. Central banking here in South Africa, no less than internationally, has come a long way since then. Indeed, not long after Volcker shared his best advice with King, John Taylor (1993: 197) claimed that: "if there is anything about which modern macroeconomics is clear however – and on which there is substantial consensus – it is that policy rules have major advantages over discretion in improving economic performance." The consensus started in academic research on monetary policy in the seventies and eighties, and has since spread to the practice of monetary policy at central banks[177] (Taylor, 1998a). This chapter examines the policy rules that have displaced "mystique" as the hallmark of monetary policy.

### 4.1 THE EARLY DEBATE ON RULES VERSUS DISCRETION

The upheaval in macroeconomics brought by the theoretical advances and practical frustrations of the seventies had a major impact on how economists treated the rules versus discretion debate. It fell to Barro and Gordon (1983a; 1983b) to build on the foundations laid by Kydland and Prescott (1977) and move the rules versus discretion debate to a new level, by introducing the possibility of "activist" policy rules. These theoretical developments have since had a significant impact on the practice of monetary policy too and this section traces the subsequent development of a debate that is central to understanding inflation targeting, as an example of such an activist policy rule.

Prior to the seventies, the debate on rules versus discretion divided economists into a camp favouring an active role for policy makers in achieving the goals of macroeconomic policy and a

[177] For Blinder (1997b: 9) this "systematic, step-by-step way of thinking about stabilising a system subject to uncertainty and lags" typical of rule-like monetary policy, was one of the lessons that central bankers could learn from academic economists. In addition to informing policy decisions, rules are also increasingly used by academic economists and research staff at central banks, as well as by financial and business sector analysts of financial markets. Rules are also increasingly used in macroeconomics syllabuses as a tool for understanding monetary policy (Taylor, 2000b).

camp which argued that such goals are best achieved by tying the hands of policy makers (in the manner of Homer or similar, mentioned in chapter 3). In this dichotomy rules are passive, while discretion allowed an active response by policy makers to the state of the economy. And the debate turned on whether there was both the need and the technique for economists to interfere benevolently, or whether prudence combined with science to suggest that despite economic pathologies, policymakers should shun activism as their knowledge and instruments lacked the requisite precision to correct the market failures.

Milton Friedman (1968) made the case for rules in monetary policy by highlighting the epistemological limitations undermining "fine tuning" in his now famous presidential address. Policymakers, he argued, were not so ignorant that policy instruments were perversely adjusted in the wrong direction, given the state of the economy. Rather, policy makers could not incorporate the long and variable lags of the transmission mechanism in their optimisation problem, with the result that policy adjustments were, generally, "...too late and too much..." (Friedman, M., 1968: 16).

Friedman's (1968: 16) much maligned policy implication was that "...the monetary authority go all the way in avoiding such swings by adopting publicly the policy of achieving a steady rate of growth in a specified monetary total." Though a radical suggestion at the time, it was not without precedent - for example, (Simons, 1936) - or influence. Indeed, Friedman's policy proposal ascended with his theoretical analysis as the Keynesian model unravelled in the seventies, and several central banks[178] adopted versions of the k-percent money rule as a nominal anchor in the late seventies and early eighties. However, Friedman (for example, 1948; 1960; 1968; 1982), as Simons (1936) before him, emphasised that a strict money rule could only be implemented with success, if far reaching changes were made to the institutional structure of the financial sector, especially the banking sector. Absent the requisite changes, a monetary rule might add to, rather than dampen, monetary disturbances.

The adoption of monetary targeting in the late seventies was not generally accompanied by the requisite institutional reforms; hence the unsatisfactory outcome in the UK and USA (which eventually led to the abandonment of their monetarist experiments) was no great surprise. It is interesting to note that Simons (1936) felt that the requisite institutional adjustment were so difficult (for example, a restriction on short-term borrowing on his argument) that a second best

[178] Including the SARB on the recommendation of the de Kock Commission (1985).

policy, of price-level targeting was preferable as it was consistent with the modern financial system. This perspicacious conclusion prefigured the developments dealt with in the following section (and in chapter 5), according to which the discipline of a rule has come to be combined with a sensitivity to the state of the economy in inflation targeting as a framework for monetary policy.

A second reason for preferring rules was that activist policy makers were labouring under the delusion that a long run trade-off existed between inflation and unemployment (or economic growth). Kydland and Prescott (1977) demonstrated how the policy activism of the day would, due to dynamic inconsistency, lead to the undesirable consequences described in chapter 3. In this way, the literature on dynamic consistency added commitment problems to the earlier epistemological arguments in favour of rules. Despite these powerful theoretical arguments, though, central bankers did not adopt rules wholesale in response. And their reluctance may have demonstrated how well they had learnt the lessons of the preceding era, encouraging caution with the implementation of a rule based on the imperfect knowledge of the time[179]. Subsequent theory and practice have shown, however, that a commitment to rules need not be closed to improvements in knowledge, as is shown in section 4.2.

## 4.2 ACTIVIST POLICY RULES

Prior to Kydland and Prescott (1977) the case for rules was undermined by the argument that policy makers with discretion always had the option of implementing a rule, should it seem beneficial. In this clear sense, discretion seemed to dominate rules (Blanchard and Fischer, 1989). However, Kydland and Prescott (1977) turned the tables on the case for discretion by demonstrating the difficulty of credible commitment by a monetary authority with discretion. Their seminal work added theoretical fuel to a debate which at the time, was in practice drifting towards the adoption of simple monetary growth rules.

Barro and Gordon (1983a) took the next step by arguing that "...discretion amounts to disallowing a set of long-term arrangements between the policymaker and the public. Purely

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[179] Christina and David Romer (1996: 14) employed this epistemological argument to argue against rules; in their words: "If the best available evidence at a given time about policy is incorporated into a binding rule, the conduct of policy cannot reflect improvements in knowledge." This argument led the Romers (1996: 14) to advocate not only discretion for policy makers in the pursuit of monetary policy goals, but discretion in the very goals of policy, too. In contrast, the first part of this dissertation argued that there is no residual uncertainty about the desirable long term goals of monetary policy. It remains to consider whether uncertainty requires discretion in the pursuit of those goals, and that is the focus of this chapter.

discretionary policies are the subset of rules that involve no guarantees about the government's future behaviour." Subsequently, the central aspect of a rule has come to be recognised as the commitment by policymakers to future behaviour, not the presumed permanence of parameters in the policy rule. Further, it was also clear to Barro and Gordon (1983a: 608) that this modern conception of rules was an application of the rule of law to economic policy - as explored in chapter 2 and broadly applied to public policy.

Friedman's k-percent rule for monetary growth follows from two distinct premises. They are: firstly, that the monetary authorities should not exercise discretion in setting the stance of policy, and secondly that policymakers should not respond to the state of the economy (Blanchard and Fischer, 1989). Logically, maintaining the first does not imply the second. Nor do the epistemological or time-inconsistency arguments for rules (mentioned in the previous section) require the second conclusion. An important task of the quarter century since Kydland and Prescott (1977) - and others, including Lucas and Sargent (1997 [1978]) - has been to clear up the case for rules, by ridding the case for rules of the second conclusion. This left the case for potentially activist monetary policy rules, standing on the joint foundations of epistemology and commitment as a solution to dynamic inconsistency, both of which required a more careful consideration of forward looking behaviour by the private sector as much as by the authorities[180].

Since the sixties macroeconomists have emphasised the importance of forward looking behaviour and hence expectations for most macroeconomic relationships, and especially for policy analysis. The rational expectations hypothesis has become the leading technique for incorporating expectations explicitly in macroeconomics theory and policy, since the seminal work of especially Robert Lucas (for example, 1972; 1976; and Lucas and Rapping, 1969). Indeed, both Kydland and Prescott's (1977) demonstration of potential dynamic inconsistency and Sargent and Wallace's (1975) demonstration of potential policy ineffectiveness depended crucially on the expectations having been modelled rationally.

Though the impact of the rational expectations revolution in macroeconomics was, initially, more pronounced on the theoretical side, policy research has increasingly responded to the theoretical developments since the early nineties. John Taylor (1999c) has called this new direction in policy research the "new normative macroeconomics", which considers forward

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[180] In addition, the following factors have added to the case for rules: the Lucas critique against traditional econometric policy evaluation; the realisation that expectations can be modelled rationally without implying ineffective monetary policy; and the recognition of the important empirical benefits of credibility for policy makers and the analysis of how to design credible policies (Taylor, 1993).

looking policy models and policy rules to analyse policy trade-offs[181]. However, it is the emphasis on policy rules that is the outstanding feature of the new normative macroeconomics.

Taylor's (1999b) introduction to a volume of conference papers on rules in monetary policy described the standard methodology of new normative macroeconomics. In short: an economic model is specified to represent the features of interest for the policy maker; secondly, the economist specifies a group of rival policy rules, with a loss function that will be used to judge the performance of the rival rules; finally, the relative performance of the rival rules are compared to determine whether any normative policy conclusions can be sustained.

New normative policy analysis contrasts with the analysis of discretionary policy based on dynamic programming (which had been standard in economic policy analysis up to the seventies). The latter was discredited by the combined force of rational expectations, the Lucas-critique and potential time-inconsistency (Taylor, 1999b). That sort of dynamic programming is only relevant for a deterministic system (as studied by control theory in engineering), where the actions of the private actors are mechanistic responses to the policy decisions of the authorities[182] (Woodford, 2002a). Macroeconomists have finally abandoned such a mechanistic vision of economic behaviour post-rational expectations (after many abortive attempts at dynamic analysis which Beaud and Dostaler (1993) traced back especially to the Stockholm school of the inter-war period).

Normative analysis of policy rules is however neither new, nor a feature of post-rational expectations macroeconomics. Yet, the adoption of the rational expectations hypothesis, and especially the econometric implication thereof in terms of the Lucas critique[183] have added considerable weight to the arguments in favour of considering rules. For some, like John Taylor (for example, Taylor, 1999c), the centrality of expectations in modern macroeconomics virtually implies that policy rules[184] are required to evaluate macroeconomic policy. This striking result follows from the Lucas critique: the parameters of macroeconomic relationships used in policy

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[181] The trade-offs considered in the new normative macroeconomics are those between the variability of various macroeconomic magnitudes like inflation, real output and unemployment (Taylor, 1999c).

[182] The same A.W. Phillips of the famous curve (an engineer by training) contributed an extreme version of this mechanistic approach to macroeconomic modeling with his *Mechanical models in economic dynamics* (Phillips, 1950) which embodied what Beaud and Dostaler (1993) have called "hydraulic Keynesianism."

[183] See Lucas's (1976) seminal exposition of the critique.

[184] At least feedback rules, or contingent plans as described below.

design can only be invariant to policy adjustments if the policy is itself based on a rule that specifies how future policy adjustments will be made[185] (Taylor, 1999c).

Barro and Gordon (1983a) helped to clarify the nomenclature for the new normative economics by identifying discretion with period-by-period optimisation by policy makers. In contrast, rules specify the period-by-period implementation of a contingent plan that maps the state of the economy into adjustments of the policy instruments. Whereas under discretion there is a uniquely optimal policy setting for each state of the world, the mapping from the economy to the policy instruments under a rule is designed *ex ante* to be beneficial under a large variety of possible contingencies (McCallum, 1999). The difference between discretion and rules in normative policy analysis mirrors that between in-period politics and constitutional politics discussed in chapter 2.

This modern understanding of a policy rule is what Taylor has called a contingency plan, i.e. "...[a] plan that specifies as clearly as possible the circumstance under which a central bank should change the *instruments* of monetary policy... [and] Implicit in this definition, is that the policy rule will in fact be used[186], and expected to be used, for *many periods into the future*" (Taylor, 2000b: 3, emphasis in the original); or in the words of Stephen Cecchetti (1998a: 1): "a policy rule [is]... a systematic rule for adjusting the quantity that the Central Bank controls as the state of the economy fluctuates." Though it is a rule, such a contingent plan responds to the state of the economy, and is hence properly called an "activist rule".

A rule understood as a contingency plan is clearly not the mechanistic standard of earlier Friedman vintage which implied a "fixed setting for the instruments of monetary policy" (Taylor, 1993: 196)[187]. Rather, the broader understanding of rules provides a way of thinking about monetary policy that implies a distinction between the "policy' and the "stance of policy". Consequently, the evaluation of monetary policy proceeds along two axes, with respect to the

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[185] Or, as Woodford (2002a) observed: "[The Lucas critique] can be addressed by making use of structural relations explicitly representing the dependence of economic decisions upon expectations regarding future endogenous variables."

[186] The choice of rule is not arbitrary. To be credible, the rule must be believable, hence the rule must incorporate the rational expectations of all participants (McCallum, 1993).

[187] Though Friedman himself has never supported activist policy rules his work is consistent with such rules. Furthermore, McCallum (1999) has shown that Friedman used the same logic as Barro and Gordon (1983a) when he argued that:: "...if each case is considered on its [individual] merits, the wrong decision is likely to be made in a large fraction of cases because the decision-makers are ... not taking into account the cumulative consequences of the policy as a whole. On the other hand, if a general rule is adopted for a group of cases as a bundle, the existence of that rule has favourable effects on people's attitudes... and expectations that would not follow even from the discretionary adoption of precisely the same [actions] on a series of separate occasions" (Friedman, M., 1962: 241).

policy (rule) on the one hand, and with respect to the day-to-day implementation of the policy (the stance of policy), on the other. And great care has to be taken to design the incentives facing the monetary authorities in both policy and implementation[188].

An early example of such a feedback rule was that proposed by John Taylor (1993) as an attempt to bridge the gap between academic research on policy rules and the practice of monetary policy. He derived the rule, now called the Taylor rule, bearing the following lessons in mind from his academic research and from his experience as a member of the President's Council of Economic Advisors: firstly, that interest rate rules seem to work better than money supply rules[189]; secondly, that a rule which related interest rate adjustment both to inflation and to real output, dominated rules which reacted either to inflation or output alone; thirdly, interest rate rules without the exchange rate dominated those that included the exchange rate (at least for developed countries). The Taylor rule is shown in equation 4.1.

$$r = \pi + \frac{y - y^*}{2} + \frac{\pi - 2}{2} + 2 \qquad (4.1)$$

Where:

r: the nominal Federal Funds rate

$\pi$: the four-quarter average inflation rate

y: 100 × the log of real GDP

y*: 100 × the log of potential real GDP[190]

The calibration of this simple rule was not done to fit the historical experience in the manner of a regression equation. It is fundamentally a normative rule, describing what the short-term interest rate ought to be, contributing in that way to the policy making process. Nevertheless, it describes

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188 The importance of institutional design, i.e. the structuring of incentives, only becomes relevant when the choice of monetary policy regime is not framed in terms of "stark" rules versus discretion (King, M.A., 1997). In the idealised worlds at either end of the spectrum there are no transaction costs and no institutional concerns. But practical monetary policy starts with given institutions – that are expensive to change – and must, perforce, be mindful of incentive effects.

189 The criteria used to discriminate between rival policy rules are the variances of the instrument variables as well as that of the target variables.

190 The specification of potential GDP has important implications for the analysis of monetary policy rules. Gali (2002) emphasises that the output gap must, in this context, be understood as "the deviation of output from its equilibrium level in the absence of nominal rigidities", which corresponds to Friedman's (1968: 8) early conception of the natural rate of unemployment (or output), that is "the level that would be ground out by the Walrasian system of general equilibrium equations..." Inflationary pressure responds to the output gap so defined, in a properly defined expectations-augmented Phillips curve (Woodford, 2002a). The contrast is with calculating the output gap as the deviation of actual from trend output. Using a policy rule such as Taylor's with trend output as input would be highly inefficient by failing to signal when fundamentals in the economy imply significant changes in potential output (Gali, 2002).

actual Federal Reserve Board policy since 1980 with a high degree of accuracy[191], and (at least a modified version of it) seems to describe the experience in other developed countries too (Clarida, Gali and Gertler, 1997).

At the same time, deviations from the rule can be interpreted as a measure of the discretion exercised by the authorities. Taylor's, and other activist rules, imply no prior against discretion per se. Rather, it facilitates an open discussion of the discretion, and so contributes to more rational policy making[192] (Taylor, 1998a). Indeed, the monetary authorities cannot but use discretion with a contingent plan, given the lagged and uncertain nature of macroeconomic data that form the inputs of the policy rule (Taylor, 2000b).

Whereas the Taylor rule uses the short term interest rate as instrument – in step with the bulk of the literature and with practical central banking, at present – it could also be specified in terms of, say, a monetary aggregate[193] or a nominal exchange rate. The issue cannot be settled *a priori*, and the relevant issues are essentially those long since analysed by Poole[194] (1970), that is: the relative importance of different types of shocks to the economy determines the optimal instrument. If the velocity of money is relatively more unstable, then an interest rate rule would be preferable, while a money supply rule is optimal when shocks to aggregate expenditure is the dominating source of short run instability in the economy (Friedman, B.M., 2000; Poole, 1970; Walsh, 1998). The experience of the last two decades suggests greater uncertainty about the velocity of money relative to that of aggregate expenditure in industrialised countries, and this has contributed much to the rise of interest rate rules as opposed to money supply rules (Blinder, 1997b; Friedman, B.M., 2000; Taylor, 2000b; Walsh, 1998).

Two important dimensions of activist policy rules should be emphasised. The first is the systematic character of the policy rule. In the case of monetary policy, for example, the policy

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191 The Taylor rule does not seem to fit Federal Reserve Board policy during the seventies. It is suggestive to observe that the US economy enjoyed greater stability during periods when the Taylor rule described monetary policy decisions accurately than at times when policy deviated systematically from the rule. This confluence of a favourable macroeconomic experience with the demonstrable match between actual policy and a simple rule has contributed much to the rise of feedback rules as an important framework for monetary policy (Taylor, 1998a).

192 Using his rule, Taylor (1998a) interpreted the sharp easing of monetary policy in the wake of the 1987 stock market crash as an instance not just of discretion by the Federal Reserve Board, but of discretion correctly exercised. In contrast, the sharp tightening of the monetary policy domestically in 1998 – at the time of the Rand's rapid depreciation – would be an example of discretion exercised inappropriately by the SARB.

193 Bennett McCallum has emphasised this important alternative in a number of influential contributions on monetary policy rules over the last 10 years and more (McCallum, 1990; 1993; 1999).

194 Though in a more complex setting due to the incorporation of feedback effects (Taylor, 2000b).

rule must describe as clearly as possible how the policy instrument (usually the interest rate) will be adjusted given various contingencies in the economy (Taylor, 2000b). This is a necessary, but not sufficient, condition for a policy regime to be described as rule-like.

A second condition for rule-like behaviour is that the rule take into account how decision makers throughout the economy will respond to the implementation of the rule (McCallum, 1993; 1999). This emphasis on expectations shows how the theoretical developments in macroeconomics have impacted on the practice of monetary policy. Indeed, some proponents of rules in monetary policy - like Michael Woodford – build their case for rules on the merit of matching policy action and public expectations within the framework provided by a policy rule[195]. In a recent interview Woodford explained his position as follows:

> "In my view, rules are important not because central bankers can't be relied upon to take the public interest to heart, or because they don't know what they're doing, but because the effects of monetary policy depend critically upon what the private sector expects about future policy, and hence about the future course of the economy. Thus effective monetary policy depends more on the management of *expectations* than on any direct consequences of the current level of interest rate...the best way to do this is by being explicit about the *rule* that guides its decision making. The central bank also needs to establish a reputation for actually following the rule" (Woodford, 2002b: 1, emphasis in the original).

Committing to a rule allows the public to form rational expectations about the future conduct of monetary policy. New Institutional Economics meets modern macroeconomics at this point: a rational expectations equilibrium in a forward looking monetary policy model means that the private sector expects the central bank to deliver on its policy claims. But this is analogous to describing the monetary policy framework as an incentive compatible institution – see for example, (North, 1984; 1989) and the discussion in chapter 1 – where private sector expectations are shaped according to the incentives for policy makers to deliver on their policy aims. Indeed, the "time consistent" rules from a "timeless" perspective[196] which are implied by rational expectations are none other than incentive compatible institutions that deliver the aforementioned equilibrium.

The previous paragraph reveals a false dichotomy between rules and institutions: Larry Summers (1991: 629-630) contested the case for rules in monetary policy with the argument that

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[195] This argument mirrors the case in favour of rules derived in the first two chapters of this dissertation where the role of institutions in guiding private expectations and the importance of rules in resolving the paradox of power efficiently, was emphasised.

[196] "Time consistent" rules from a "timeless" perspective are discussed at length below.

"monetary institutions can do the work of monetary rules, ...[hence] I don't see any case at all for monetary rules." Subsequent evolution in the understanding of rules has bridged the gap that evidently separated rules and institutions little more than a decade ago for Summers (1991). The modern understanding of rules as contingent plans that specify the goals of policy and the systematic plan of how to achieve them are "rules of the game" for monetary authorities, and hence institutions. Like other institutions, monetary policy rules are efficient or not, depending on whether they meet the criteria listed in the first chapter. Amongst those characteristics, incentive compatibility is intimately associated with the idea of rational expectations in a forward looking policy model as argued above.

Of course, the rule (and hence the expectations of its continued implementation) is itself contingent on the central bank's understanding of the economy represented by its suite of economic models. And there is no threat to the credibility of the authorities' commitment to a rule if the specification of the rule is updated from periodically, as knowledge of the economic system improves, provided that this knowledge is disseminated transparently (Woodford, 2002a).

It is the systematic nature[197], not the supposedly fixed parameters, of policy rules that is important in modern normative policy analysis[198] (Cecchetti, 1998a). Or, as Alan Greenspan (1997: 7) described the use of policy rules at the Federal Reserve Board.: "...we try to develop as best we can a stable conceptual framework, so policy actions are as regular and predictable as possible – that is, governed by systematic behaviour but open to evidence of structural macroeconomic changes that require policy to adapt."

The method of new normative economics is therefore to compare the outcomes of various systematic policies that are intended to be in place for a long time[199] (sometimes indefinitely, as in

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[197] For this reason – and due to the negative connotation of "policy rules" in some circles – the authors of the "1990 Economic Report of the President" (one of the first policy documents advocating rule-like monetary policy in a developed country) preferred the term "systematic policy" over "policy rule". This was also done to emphasise that rule-like policy is a broader concept than the simple application of a mathematical formula (Taylor, 1998a).

[198] Even though the rule, or contingency plan, is often formalised in mathematical form, there is no suggestion that it will be used in mechanistic fashion. Indeed, such a formalisation remains an approximation to more complex behaviour, just as is the case for any economic theory. Despite the rule, policy still requires judgement and "cannot be done by computer" (Blinder, 1997b; and Taylor, 1993: 198).

[199] Since the collapse of the Bretton Woods system, two central banks have gained exceptional reputations for both credibility and their commitment to money targeting as nominal anchors. It is, therefore, instructive to note that both the Bundesbank and the Swiss National Bank understood their money targets to define flexible rules in the sense described above. Annual money targets defined a policy framework which allowed both central banks to communicate their systematic behaviour and their discretion to the public. Having an intelligible and transparent policy framework, against which the inevitable discretion could be measured, contributed greatly to the establishment of credibility for monetary policy in Switzerland and West-Germany and in maintenance of that credibility even when short run outcomes were unfavourable (Bernanke, et al., 1999).

the case of dollarisation). The preferred policy rule is the one which, under simulated conditions, yields the most favourable outcome in terms of low and stable inflation and low volatility in real output, the real exchange rate and so on (Persson and Tabellini, 1993; Taylor, 1993; 2000b).

## 4.3 SIMPLE POLICY RULES

Evidently, explicit models of the economy play a crucial role in new normative economics, both as an input to the policy decisions of the monetary authorities and as a framework for communicating those decisions to the public[200] (Woodford, 2002a). To this end, the economist simulates the economy's behaviour under different policy rules, following which the rival rules can be ranked according to the desirability of their outcomes (in terms of aggregate price and output variability and so on) as well as robustness (Svensson, 2002b). In policy rules, as much else in economics, trade-offs emerge frequently. Monetary policy makers, for example, often face a trade-off between minimising the variance around the nominal anchor and minimising the variance around other target variables, such as deviations of real output from its natural path (Taylor, 1998a; 1999c; 2000b).

Proceeding in this manner is problematic though, as the optimal policy rule typically involves finding a rule that minimises a specified loss function given a detailed specification of the aggregate supply function of the economy and a specification of the transmission mechanism for monetary policy[201] (Barro and Gordon, 1983a; 1983b). However, the optimal policy so derived often requires that the authorities discount an information set entirely out of proportion with the limited information available to actual policy makers (Blinder, 1998); indeed, such attempts are so many examples of what Hayek (1989 [1974]) called the "pretence of knowledge."

Further, the optimal solution is often not robust with respect to the particular specification of the monetary transmission mechanism, the aggregate supply function and the remaining features

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[200] Systematic policy without a model is inconceivable, as Blinder (1997b: 8) quipped memorably: "While at the Fed, I used to say that there are two basic ways to obtain quantitative information about the economy: you can study econometric evidence, or you can ask your uncle ... we should be careful not to give aid and comfort to the supporters of uncle-asking, which is really a subterfuge for escaping the discipline of the data and allowing your priors to run rampant." Policy makers need not pretend that their model is the "true" model of the economy. Indeed, such certainty can never be attained - as argued by, amongst others Popper (2000 [1959]) - and the absence of certainty need not dispirit central bankers any more than it does natural scientists. Nevertheless, the model should be the "best" available, where the criteria for "best" is derived from the application of the philosophy of science as applied to economics and econometrics (see, for example Spanos, 1999).

[201] See the policy model used as an example in the following sub-section.

of more elaborate models. This is a serious problem, given that the central bank is unlikely to know either the structural form or the parameter values of the true model. Finally, some of the crucial features of the theoretical models – for example, technology shocks – are unobservable to actual policymakers, which hampers their ability to respond in manner of theoretical central banks (Gali, 2002).

Taken together, the problems mentioned in the last two paragraphs have stimulated research into simple rules[202] (as opposed to the comprehensive, or optimal, rules) which may be more robust with respect to model specification and less onerous in their information requirements[203] (Gali, 2002; Rudebusch and Svensson, 1999). The Taylor rule (described above), exchange rate pegs and constant money growth rules are examples of such simple rules, though only the first of these is an activist rule.

In his summary of the recent literature on simple rules, Galí (2002) concludes that the Taylor rule outperforms money growth rules or interest rate rules across many specifications. Nor is the Taylor rule merely at the top of a poor class, rather its outcome is very close to that of an optimal policy rule in a standard sticky price model (of the class widely used in the literature). This is an important result for this dissertation too, as inflation targeting central banks typically use a policy rule that resembles the Taylor rule in practice (see chapter 5).

A second important result from the recent literature on monetary policy rules is the demonstration that potential welfare gains associated with adopting rules in the earlier literature do not rely exclusively (or even at all) on preventing policy makers from targeting a level of output in excess of the natural level (through political pressure, ignorance or incompetence). Rather, Clarida, Galí and Gertler (1999) have shown that a credible commitment to a policy rule generates welfare gains even in the absence of an inflationary bias, as long as there is a short run trade-off between output and inflation.

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[202] A "simple" policy rule is a rule with few arguments.

[203] Taylor (1999b) explains this result by arguing that optimal rules achieve their optimality by exploiting the specific features of the model, which is precisely why they work poorly in a different modelling context with different features.

### 4.3.1 *Different types of simple policy rules*

The attention by monetary theorists to simple rules has led to further refinements in the terminology used to distinguish different types of simple rules. A particularly important distinction for understanding inflation targeting is that between "instrument rules" on the one hand, and "target rules" on the other. This distinction is the focus of the next few paragraphs and draws particularly on the work of Svensson (see, for example his 1996; 1999b; 2002b).

Following amongst others, Svensson (1999b) and Walsh (1998), a target variable is defined here as a variable that enters the monetary authority's loss function. Svensson's (1999b) simple linear model with quadratic loss function is used here to show how to move from this definition of target variables to the concepts of "instrument" and "targeting" rules. The general model shown in equation 4.2 represents the relevant aspects of the economy.

$$\begin{bmatrix} X_{t+1} \\ x_{t+1|t} \end{bmatrix} = A\begin{bmatrix} X_t \\ x_t \end{bmatrix} + Bi_t + \begin{bmatrix} v_{t+1} \\ 0 \end{bmatrix} \qquad (4.2)$$
$$[v_{t+1}] \sim iid(0, \Sigma_{vv})$$

where:

$X_t$: A column vector of state variables, i.e. predetermined variables at time t.

$x_t$: A column vector of contingent (not pre-determined), or forward-looking variables.

$x_{t+1/t}$: The expectation of $x_{t+1}$ given the information available at time t, i.e. $E_t x_{t+1}$

$i_t$: A column vector of monetary policy instruments[204].

$v_{t+1}$: A column vector of exogenous, iid shocks with zero means and constant variance matrix.

A, B: Coefficient matrices

At the start of period t, the state variable $X_t$ and shocks $v_t$ are observed. The monetary authorities respond by setting their instruments to $i_t$, which allows the realisation of $x_t$ at the end of period t. In setting their policy instruments the monetary authorities consider the state variables $X_t$ as indicators of the state of the economy, but also consider the relevant vector of target variables $Y_t$, shown in equation 4.3 that describes the monetary policy transmission mechanism.

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[204] In practice this vector often reduces to a scalar containing the short-term interest rate.

$$Y_t = C\begin{bmatrix} X_t \\ x_t \end{bmatrix} + Di_t \tag{4.3}$$

where:

$Y_t$: A column vector of target variables

C, D: Coefficient matrices

To specify a loss function a target needs to be specified for each of the target variables in $Y_t$, and these are collected in the column vector $Y^*$[205]. The quadratic period loss function[206] is then given by equation 4.4 and the intertemporal loss function in 4.5, assuming a discount factor of $\delta$.

$$L_t = \left(Y_t - Y_t^*\right)' K \left(Y_t - Y_t^*\right) \tag{4.4}$$

where:

K: A positive definite matrix of the weights accorded to each target variable.

$$E_t \left(1-\delta\right) \sum_{\tau=0}^{\infty} \delta^t L_{t+\tau} \tag{4.5}$$

An explicit reaction function for the monetary authorities can now be defined unambiguously as a mapping (with reaction coefficients f) from the state variables $X_t$ to the policy instruments $i_t$. Equation 4.6 shows a linear example of such a reaction function. Should the monetary authorities use an explicit reaction function as a monetary policy rule, then Svensson (1996) calls such a rule an "explicit instrument rule", i.e. a rule that maps state variables directly into the instrument variables.

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[205] The vector of target variables could be time-dependent, in which case $Y_t^*$ would describe it.

[206] The use of a quadratic loss function is mathematically convenient when random variables enter the loss function. A quadratic loss function with additive shocks reduces the optimising problem over random variables to an equivalent (but more tractable) optimising over the means of the random variables (Ljungqvist and Sargent, 2000: 58-59; and Obstfeld and Rogoff, 1998: 81). The functional form of the loss function is a proposition (much like that of an econometric model) and does not claim to represent the policy maker's preference comprehensively any more than an econometric model can claim to mirror the underlying data generating process. Some of the relevant empirical questions to consider include: whether the loss function should be additive, and whether it should treat positive and negative deviations symmetrically (Chow, 1974). These questions can, at least in principle, be considered empirically and recently the linearity and symmetry of monetary policy loss functions were questioned by Ruge-Murcia (2002). However, Ruge-Murcia (2002) claims only that his empirical evidence against the simplifying assumption of certainty equivalence is "exploratory".

$$i_t = fX_t \tag{4.6}$$

In contrast with the explicit reaction function which depends only on the state variables, an implicit reaction function could also be defined which maps both state and conditional variables into the instrument variables. Equation 4.7 shows such an implicit reaction function. Should the monetary authorities use an implicit reaction function, then Svensson (1996) calls such a rule an implicit instrument rule, i.e. a rule that maps both state variables and conditional variables into the instrument variables.

$$i_t = fX_t + gx_t \tag{4.7}$$

Using this nomenclature, the Taylor rule can be described as a simple instrument rule, and whether it is an explicit or implicit instrument rule depends on whether or not it contains contingent variables (for example an inflation forecast) (Svensson, 1999b). Much of the recent literature on monetary policy rules considers simple instrument rules like the Taylor rule (Svensson, 2002b).

Both Svensson (2002b) and McCallum (2000) have argued that instrument rules risk turning monetary policy into a mechanistic activity. However, amongst the major proponents of instrument rules, John Taylor has frequently emphasised that these rules should be used as guides for monetary policy and not followed mechanistically (see, for example Taylor, 1993; 2000b). This appeal to sound judgement at the central bank leaves Taylor open to the charge of indeterminacy, though. For example, rules as guidelines are themselves incomplete until a meta-rule is specified that indicates when the rule should be applied[207] (Svensson, 2002a). The absence of these meta-rules undermines the usefulness of instrument rules in practice. Indeed, Svensson (2002b) observes that "*no central bank has so far made a commitment to a simple instrument rule like the Taylor rule or variants thereof.* Neither has any central bank announced a particular instrument rule as a 'guideline.'" (Svensson, 2002b: 4, emphasis in the original)[208]

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[207] The necessary inadequacies of an instrument rule will lead to many practical instances where the authorities would have clear incentives to deviate from the rule. Svensson (1999a), therefore, argues that instrument rules are generally not incentive compatible and consequently contradict the requirements of an efficient institution sketched in the first chapter.

[208] McCallum (2000: 274) recalls that at the IMF's "High level seminar: Implementing inflation targets" in March 2000 the participants, both academics and central bankers, emphasised that "...in practise, no inflation targeting regime had turned policy decisions over to a clerk armed with a simple formula and a hand calculator – or even to a team of PhD economists armed with computers and Matlab routines."

Further problems with simple instrument rules relate to the exclusion of extra-model information[209] and the difficulty in adjusting the rule, without undermining the credibility of the commitment, as new information about the economy (especially the size and source of shocks), or the transmission mechanism becomes available (Svensson, 1999a; 2002b).

Small open economies may face additional problems when implementing simple instrument rules, due to the larger number of state variables (for example the output gap, inflation rate, exchange rate and so on) to which satisfactory monetary policy has to respond. In a relatively closed economy, like the USA, the output gap and inflation rate of the Taylor rule may be sufficient to capture the most important influences that should guide the setting of monetary policy in an approximately optimal manner. However, monetary policy needs to respond to a number of additional state variables in a developing country, including the real exchange rate, foreign interest rates, the terms of trade, the international business cycle and so on (Svensson, 2000). But there are no satisfactory simple instrument rules that contain these additional state variables in the literature (Svensson, 2002b).

Svensson (2002b) suggests that the apparent gap between the theory and practice of new normative macroeconomics could be bridged by broadening the concept of policy rules to include "targeting rules" in addition to instrument rules. Whereas central banks have only committed to instrument rules in extreme circumstances (for example, when adopting a currency board) another form of commitment has been seen more regularly, that is: commitment to a loss function (Svensson, 1999a; 1999b). Such a commitment entails the target variables as well as the relative weights assigned to them in the loss function[210].

An obvious advantage of such a commitment to a loss function is the improved transparency of the monetary policy framework, with two consequent benefits. Firstly, forward looking decisions by the private sector can only incorporate monetary policy decisions with any degree of precision if the goal variables and relative weights used by policy makers are known. Secondly, the improved transparency also contributes to greater accountability of the monetary policy

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[209] Svensson (2002b: 23) argues that the use of judgement and extra-model information is both "...desirable in principle and unavoidable in practice." Whereas the many unexpected events of the world requires policy makers to use discretion more or less continuously, an instrument rule provides no guidance as to when and by how much the policy maker could depart from the rule. Forecast-based instrument rules are less vulnerable to the criticism of shunning extra-model information (the difference between target rules and forecast-based instrument rules is considered in chapter 5 where inflation forecast targeting is discussed).

[210] Svensson's claim that such a commitment is possible and indeed has been made is not without controversy. McCallum (2000), for one, denies that any central banks have actually announced an explicit loss function.

procedure, with the resultant political benefits that are explored in chapters 8 and 9 of this dissertation.

Svensson (1999b) uses the term "targeting rule" to described a rule that specifies a set of target variables $Y_t$, their target levels Y* and a loss function (with a matrix of weights and a discount factor). The central bank then sets out to minimise this intertemporal loss function. As per other dynamic optimisation problems, a first order condition can be found in the form of a set of equations that the target variables must satisfy in order to minimise the loss function.

The intricacy of the first order condition depends on the nature of the transmission mechanism and the complexity of the economy. A first, almost trivial, case is whether the central bank has perfect control over the target variables and where these goals are not subject to either intertemporal or intratemporal trade-offs. In this case the first order condition is given by the condition in equation 4.8:

$$Y_t = Y^* \tag{4.8}$$

The situation is only slightly complicated if the central bank has imperfect control over the target variables as long as there are no intertemporal or intratemporal trade-offs amongst the target variables. In this case the first order condition resembles equation 4.8 but with the conditional forecast of the target variables $(Y_{t+\tau/t})$[211] replacing the observed vector of target variables as in equation 4.9.

$$Y_{t+\tau|t} = Y^* \tag{4.9}$$

However, optimisation is less trivial when intertemporal and intratemporal trade-offs appear between the various target variables (as is often the case in monetary policy). In this more complex reality, optimisation implies equalising the marginal rates of substitution and transformation between the target variables in "every direction", to use Hicks' (1939: 25) felicitous phrase. More rigorously, the first order condition is the set of equations that equalise the intertemporal and intratemporal marginal rates of substitution and transformation between

[211] With the conditional forecast made for periods $T \leq \tau$ where T is the minimum horizon over which the instruments affect the target variables.

the target variables. In dynamic optimisation, these conditions are, by convention, called the Euler equations.

There need not be a unique solution to the Euler equations, so defined, and monetary theorists - for example, McCallum (2000), Svensson (2002b) and Woodford (2002a) - have recently spent much effort on describing the properties of the feasible solutions. A first condition is that the solution be a rational expectations equilibrium, which requires that the paths of the state, conditional, and target variables be bounded for that instrument path $(i^t)$[212] which is proposed as a solution to the Euler equations (Giannoni and Woodford, 2002). To express this condition formally, the set of feasible conditions is defined in equation 4.10 after which the Euler equations will be rewritten subject to the constraints posed by the feasible set (in equation 4.12). The feasible set of solutions $(\psi_t)$ is defined in terms of the conditional forecasts of the target variables $\{Y^t(i^t)\}$[213], given different possible instrument paths that solve the Euler equations. Let $\psi_t$ be the feasible set of solutions to the Euler equations stated in terms of the conditional forecasts of the target variables.

$$\psi_t \equiv \left\{ Y^t\left(i^t\right) \middle| i^t \in I_t \right\} \tag{4.10}$$

where:

$I_t$: the set of instrument paths $i^t$ for which the Euler equations have a rational expectations equilibrium

An unintended consequence of the theoretical investigations into narrowing the feasibility set - leading to requirements such as the rational expectations equilibrium, is the reconsideration it has led to on the type of commitment implied by policy rules. Since Kydland and Prescott (1977) a widely accepted understanding of a policy rule has included the idea of a once and for all commitment to a contingent plan for monetary policy. Accordingly, the rule describes how instrument setting will be adjusted in response to disturbances in the economy from the date of adopting the policy rule $(t_0)$ onwards. Though such a policy commitment solves the time inconsistency identified by Kydland and Prescott (1977) it introduces another, as emphasised by, amongst others, Woodford (2002a).

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[212] Use the notation $\alpha^t$ to indicate the future path of any variable, $\alpha$, that is: $\alpha^t$ indicates $\alpha_t, \alpha_{t+1/t}, \alpha_{t+2/t}, \ldots$

[213] Where $Y^t(i^t)$ is the conditional forecast of the target variables Y at time t, given the interest rate path $i^t$.

The reason for the newly defined time inconsistency is that if the authorities were to reconsider their contingent plan at a later date (say $t_1 > t_0$) then the optimal contingent plan from the perspective of time $t_1$ need not continue the optimal plan they committed to at time $t_0$, due to the role played by expectations of events and policy between the two dates. At time $t_0$ the optimal rule is designed with cognisance of the effect thereof on expectations for the future, including the period up to time $t_1$. At time $t_1$ the expectations of behaviour between $t_0$ and $t_1$ will be taken as historically given, though, and no longer be considered in the construction of an optimal policy rule[214]. To prevent the policy maker from reneging on the rule[215], the authorities must not only adopt a rule, but also a meta-rule that prevents them from any future changes to the rule (Woodford, 2002a).

However, a once and for all commitment to a policy rule has distinct disadvantages (Svensson, 1999a; and Woodford, 2002a). Firstly, it is not conceivable that a comprehensive rule could be formulated that would account for all possible contingencies to which monetary policy would have to respond. Secondly, it is arbitrary to insist on the perpetual implementation of a rule of which the design is contingent on the knowledge and events of a particular time, despite advances in economic knowledge and/or hitherto unexpected economic events[216]. As mentioned above, the Romers (1996) formulated their argument against adopting rules in monetary policy along these lines. The Nobel Laureate James Tobin (1998) opposed "mechanical rules" for the same reason.

Nevertheless, the Romers (1996) were mistaken to argue that this criticism amounts to a convincing argument for discretion. Indeed, Tobin (1998) allowed that it was instead an argument against "mechanical rules" but in favour of what Woodford (2002a) would subsequently call rules with a "timeless perspective." Such a rule is designed without reference to the shocks that had preceded its inception date, $t_0$, and is conditional on the central bank's understanding of the monetary policy transmission mechanism and of the loss function for monetary policy. Given that neither the central bank's understanding of the transmission

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[214] Examples of such time-inconsistency include a "surprise" inflation at the same time as committing to a low inflation target for the future (Svensson and Woodford, 2003) and all other "just this one time" policies such as punitive wealth taxes.

[215] As opposed to the risk of reneging on the policy stance as happens in the model analysed by Kydland and Prescott (1977).

[216] Fischer (1995b) argues that this introduces a potential trade-off between the cost of committing to a rule that has lost relevance and the benefits of solving the time inconsistency argument. Goodhart's law is an even stronger version of the argument in the form of an impossibility theorem that states: any monetary regularity will break down if policy makers try to exploit its existence.

mechanism nor the loss function changed between $t_0$ and $t_1$, the same rule would be adopted at time $t_1$.

However, a change in, for example, the understanding of the transmission mechanism at $t_1$ would lead to the adoption of a new policy rule at that time. But, importantly, the new rule would also have been adopted at time $t_0$ had the new knowledge of the transmission mechanism been available at that time. Woodford's timeless perspective avoids three important problems in the design of monetary policy institutions. Firstly, it eliminates the dynamic inconsistency due to expectations[217]. Secondly, it eliminates the dynamic inconsistency caused by the benevolently over-ambitious central bank analysed by Kydland and Prescott (1977). Finally, it avoids the trade-off between solving these problems and committing to a rule against which Fischer (1995b) cautioned.

In addition to solving the time inconsistency problem, adopting a timeless perspective in the design of monetary policy rules also satisfies the Pareto-Wicksell criteria for normative policy analysis introduced in chapter 2. Given the loss function and the state of economic knowledge, there is nobody in society who can, behind a Rawlesian veil of ignorance, recommend any other monetary policy rule. In that normative sense, a timeless policy rule is optimal from an institutional perspective too.

The assumption of a quadratic loss function, combined with the additional assumption that the shocks to the model are additive, allows the application of the certainty equivalence result in dynamic optimisation. Accordingly, minimising the stochastic loss function (equation 4.5) over future random target variables is equivalent to minimising a deterministic loss function over the (deterministic) conditional forecasts of the target variables (Ljungqvist and Sargent, 2000). In the present context that means substituting the deterministic loss function shown as equation 4.11 for the stochastic loss function in equation 4.5.

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[217] A special case of this dynamic inconsistency is what Blinder (1997b: 9, 17) called the fatal strategy of "looking out the window", which happens when policy making is too situational and too little conceptual. He suggests that this mistake can be avoided if the monetary authorities would "...specify their goals and their long-run plans to achieve them..." (Blinder, 1997b: 17). That is to say, Blinder (1997b) recommends the combination of general targeting rules (as described above) and specific targeting rules (as described below).

$$\delta^t \left(Y_{t+\tau|t} - Y_t^*\right)' K \left(Y_{t+\tau|t} - Y_t^*\right)$$
$$with \qquad (4.11)$$
$$Y^t \in \psi_t$$

The first order condition for solving this optimisation problem is a set of (Euler) equations in terms of the conditional forecasts of the target variables, of the general form shown in equation 4.12.

$$G_t\left(Y^t\right) = 0 \qquad (4.12)$$

Using this framework, Svensson (2002b) defines a "general targeting rule" as a high level plan that specifies the target variables, the target levels and the loss function where these two sets will be compared (represented by equation 4.5). A 'specific targeting rule' is instead a plan to set the instruments of policy in order to achieve the criterion of the loss function specified by the general targeting rule[218] (Svensson, 2002a). The monetary authorities use a specific targeting rule to select from the feasible set represented by equation 4.10 and in that sense it is an implicit reaction function as it selects the instrument path consistent with the preferred solution to the Euler equations[219] (represented by equation 4.12) (Svensson, 1999b).

Not all specific targeting rules used in practice are optimal, though. The following account by Charles Goodhart (2000) of his strategy at the Bank of England's MPC is an example of a (sub-optimal) specific targeting rule:

> "When I was a member of the MPC I thought I was trying, at each forecast round, to set the level of interest rates, on each occasion, so that without the need for future rate changes prospective (forecast) inflation would on average equal the target at the policy horizon. This was, I thought, what the exercise was supposed to be."

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[218] The previous chapter mentioned the increasing adoption of explicit nominal anchors by monetary authorities in developed and developing countries alike. Policy rules have gained in importance with this rise in explicit targets, as the contingent plans – or rules specify how the explicit targets are to be attained. The explicit targets are either final or intermediate goals of the general targeting rule and a specific targeting rule is used to attain those.

[219] However, the implicit reaction function is not an instrument-rule, since the former is dependent on the model of the economy used to construct the Euler equations and will change as the Bank's knowledge of the economy increases. In contrast, an instrument rule is not model dependent (Svensson and Woodford, 2003).

Formally, this specific targeting rule can be represented by equation 4.13 and the implicit constant interest rate that follows as a reaction function thereof (Svensson, 2003):

$$\pi_{t+8,t} = \pi^* \tag{4.13}$$

where:

$\pi_{t+8,t}$; The forecast (at time t) of inflation at a horizon of 8 quarters

$\pi^*$; The inflation target.

However (as mentioned above) an optimal specific targeting rule solves the Euler equations, which require the equalisation of the marginal rates of transformation and substitution between the various target variables (Svensson, 2002a; 2002b). This will usually imply a time varying instrument path, not the constant interest rate reaction function used by Goodhart[220] (Svensson, 2001; 2003).

There are several advantages to using targeting rules rather than simple instrument rules (Sims, 2001; Svensson, 2002a; 2003; and Svensson and Woodford, 2003). Firstly, it ensures coherence for the monetary policy process. Secondly, the specific targeting rule is usually a fairly simple rule and the central bank's commitment to the rule could be evaluated once the forecasts for the target variables have been published. Thirdly, monetary policy is optimal even when a simple optimal specific targeting rule is being followed. Fourthly, the specific targeting rule is fairly robust since it depends on only a few deep parameters of the model, such as the marginal rates of substitution and transformation between the target variables[221]. Fifthly, there is implicit scope for judgement in a specific targeting rule via the forecasts used to evaluate the rival instrument paths, though judgement does not enter the targeting rule explicitly. Finally, a targeting rule solves the problem of potential time inconsistency by offering the authorities a way of

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[220] In opposition to Goodhart's doubt over the likelihood that a monetary policy committee would agree on time-varying path for interest rates, Svensson (2003: 12) argues that such an agreement would add nothing in principle to the required agreement on time-varying paths for the inflation and output forecasts typically required from such policy committees.

Svensson (2003: 12-13) even suggests a voting rule for constructing the MPC's interest rate path through majority voting: each member of the MPC constructs her preferred interest rate path on a similar chart, from which the committee's interest rate path is constructed as the median interest rate for each future period. The same procedure must then be followed for the conditional inflation and output-gap forecasts, at the end of which the members should have the opportunity to revise their interest rate plans. This iterative procedure of voting, as it were, by forecasting is repeated until the process converges on an interest rate, inflation and output-gap forecast.

[221] Since the specific targeting rule solves the Euler equations the parameters in the specific targeting rule are structural parameters that circumvents the Lucas-critique of econometric policy evaluation (Woodford, 2002a). However, the parameters of the Euler equations depend on the aggregate supply specification used in the Bank's model of the economy, while the general targeting rule (based on the loss function alone) does not. By implication, the general targeting rule is more robust than the specific targeting rule (Svensson, 2002a).

committing to systematic and timeless policy without abdicating in favour of a mechanistic instrument rule.

### *4.3.2 Intermediate-targeting rules*

Intermediate targets are useful if a policy maker's goal cannot be controlled directly, but another variable could be found with a very stable causal relationship with the goal and which is under the policy maker's control. If it exists, such a variable could be used as an intermediate target. This sub-section briefly describes how the pursuit of an intermediate target could be integrated within the framework of targeting rules sketched above. The reason for this detour will be apparent in the next chapter, where it is argued that inflation targeting is an example of an intermediate targeting rule.

Using an intermediate policy target requires, however, that the transmission of policy be recursive in a very specific way, i.e. the policy instrument must affect the intermediate variable and then, through the intermediate variable, the goal. Policy changes must not affect the goal along any other route, or the optimality of the intermediate target will be compromised (Svensson, 1999a: 213). Since the monetary policy transmission mechanism operates along a number of channels,[222] it follows that the requisite recursiveness does not generally exist for monetary policy and that intermediate targets are usually sub-optimal for monetary policy (Svensson, 1999a; 1999b). The rare conditions for the optimal use of intermediate targets are mapped in the following paragraphs and equations.

Equation 4.3 above showed the relationship between the target variables on the one hand and the state variables, contingent variables and instruments on the other. A similar relationship is shown in equation 4.14, only with the intermediate target variables $Z_t$ substituted for the target variables $Y_t$, together with new coefficient matrices ($C_z$ and $D_z$ instead of C and D).

$$Z_t = C_z \begin{bmatrix} X_t \\ x_t \end{bmatrix} + D_z i_t \qquad (4.14)$$

[222] See for example Mishkin (1995).

The general targeting rule with an intermediate target is again written in the form of a loss function that will be minimised, as is shown in equation 4.15 (with the weights matrix $K_z$ replacing the matrix K of equation 4.4).

$$E^t(1-\delta)\sum_{\tau=0}^{\infty}\delta^{\tau}\left(Z_{t+\tau}-Z^*_{t+\tau}\right)' K_z\left(Z_{t+\tau}-Z^*_{t+\tau}\right) \tag{4.15}$$

Equation 4.16 shows the relationship between the intermediate targets and the ultimate targets of monetary policy.

$$Y_{t+\tau} = MZ_{t+\tau,t} + \varepsilon_{z,t+\tau} \tag{4.16}$$

The target levels for the intermediate target variables are, likewise, related to the target levels for the target variables in the original loss function, as is shown in equation 4.17, which implies the relationship between the weight matrices (K and $K_z$) shown in equation 4.18 (Svensson, 1999b).

$$Y^* = MZ^* \tag{4.17}$$

$$K_z = M'KM \tag{4.18}$$

The conditions for an ideal intermediate target[223] are stated more fully in Svensson (1996: 14-15). Firstly, the intermediate target must be highly correlated with the goal. Secondly, policy makers must have better control over the intermediate target than over the ultimate target. Thirdly, the intermediate target must be more easily observable by both the public and the policymaker. Fourthly, for the public to co-operate rationally with the policy, the intermediate target must be transparent and comprehensible.

The first condition will only be fulfilled if the policy instruments affect the target variables exclusively through their influence on the intermediate targets. This stringent recursivity requirement is represented in equation 4.19.

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[223] An "ideal" intermediate target means an efficient or optimal target here. Svensson (1999b: 619-620) refers to this class of intermediate targets as "canonical" intermediate targets. Formally, optimal intermediate targets mean that the authorities satisfy their first order (optimality) condition when using the intermediate target, but also that public monitoring can verify that those first-order conditions are being satisfied (Svensson, 1999b: 627).

$$i_t \rightarrow Z_{t+T,t} \rightarrow Y_{t+\tau}$$
$$0 \leq T \leq \tau \tag{4.19}$$

The remaining technical criteria of the requirements for canonical intermediate targets are fulfilled if certain technical constraints are satisfied (summarised in equation 4.20). Firstly, the intermediate target variables should be the conditional forecasts of the ultimate target variables. Secondly, the target levels for the intermediate targets should relate to the target levels of the ultimate target variables and, thirdly, the weight matrix of the loss function for the intermediate targets should be related to the corresponding weight matrix of the ultimate targets, as shown in equation 4.20. This satisfies the first criterion for a canonical intermediate target noted above.

$$Z_{t+\tau,t} = Y_{t+\tau|t}$$
$$Z^*_{t+\tau,t} = Y^* \tag{4.20}$$
$$K_z = K$$

The criteria for an optimal intermediate targeting rule are evidently exacting. Nevertheless, the argument of the next chapter is that inflation targeting is a rare example of an optimal intermediate target. To that end, chapter 5 will return to the technical criteria mapped out above, but also show the harmony between inflation targeting and the non-technical criteria (such as rendering the target variable observable) that were also listed above.

### *4.3.3 History dependence*

Despite the obviously forward-looking character of the targeting rules described above, targeting rules ought not to be "purely" forward-looking in practice. An important new literature – for example, (Giannoni and Woodford, 2002; Svensson and Woodford, 2003; Woodford, 1999b; and Woodford, 2002a) – explores the sub-optimality of purely forward looking policy procedures. This literature considers the effect of temporary real shocks on aggregate demand and the appropriate monetary policy response if the central bank's loss function was sensitive to output fluctuations. An important insight, first derived by Woodford (for example, 1999a; 1999b), is that monetary policy responses to such disturbance can be more moderate if rendered more persistent.

As an example, a more persistent rise in the interest rate – say following a disturbance of the exchange rate – need not have the same magnitude as an interest rate rise which is set to return to its former level over a shorter horizon[224]. However, monetary policy under discretion – with period-by-period optimisation – leaves the central bank with no incentive to maintain high interest rates once the shock has dissipated (Woodford, 2002a). This problem has been called the "stabilisation bias" in monetary policy in a close analogy to the "inflation bias" of Kydland and Prescott (1977) which is also caused by a disincentive to persist with optimal policy[225].

Woodford (1999b) credits Goodfriend (1991) with the initial insight that led to the former author's seminal analysis of the stabilisation bias. Goodfriend (1991) argued that the economy (in terms of output and prices) responds more to longer term than to short term interest rates. However, these longer-term interest rates are market determined and incorporate the market's expectations of future short-term interest rates. Monetary stabilisation, which works powerfully through long-term interest rates, therefore requires a credible commitment to a future path for short-term interest rates. Woodford (1999b) interprets the much praised monetary policy of the Federal Reserve Board during the nineties in light of this analysis:

> "...some commentators have proposed that U.S. monetary policy has been so successful at inflation stabilisation in the 1990s, despite the relatively little change in the funds rate for years at a time, because the 'bond market does the Fed's work for it,' responding to disturbance in the way needed to keep inflation stable without the need for large policy adjustments by the Federal Reserve Board. This is exactly what a good policy regime *should* look like... because a credible commitment to an optimal (highly inertial) feedback rule on the part of the Federal Reserve Board should not require large movements of short-term interest rates in equilibrium, highly persistent low-amplitude variations being sufficient to achieve a desirable degree of inflation stabilisation" (Woodford, 1999b: 10, emphasis in the original)

The stabilisation bias can only be addressed by building "history dependence" into monetary policy, that is, policy should be made dependent on past developments even when such developments hold no further implication for the development of current and future evolution

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[224] With rational forward-looking behaviour by the private sector, the short-run trade-offs facing the monetary authorities (for example, the trade-off between the goals of output and inflation stabilisation) can be improved if the private sector's expectations about future inflation and output responded correctly to an aggregate demand disturbance. However, the public will only alter their expectations, and hence their forward-looking behaviour, if the central bank was expected to bring about the altered path of inflation and output upon which the public based their forward-looking behaviour. Neither discretion, nor purely forward-looking monetary policy, however, creates incentives for the authorities to persist with the previously optimal instrument path once the shock has dissipated. If the private sector has rational expectations they would not be fooled into behaviour that would improve the Bank's trade-off as they would expect the Bank to abandon the optimal policy as soon as the shock has passed (Svensson and Woodford, 2003; Woodford, 1999b). Consequently, the authorities are forced into sub-optimally volatile instrument changes in response to aggregate demand shocks.

[225] In contrast with the inflation bias though, the stabilisation bias arises even if the target level for the output gap is zero (Svensson and Woodford, 2003).

of the target variables. This rules out the period-by-period optimisation of discretionary policy, but also purely forward-looking policy rules[226] (Woodford, 1999a). Instead, optimal policy rules should incorporate history dependence, which implies inertia in the setting of policy instruments[227] (Woodford, 2002a). Rotemberg and Woodford (1999) and Woodford (1999a) discuss examples of rules with interest rate inertia that follow from including interest rate volatility in the central bank's loss function.

In addition to the normative aspects of the literature on the stabilisation bias, there is also an important positive aspect, that is: the stabilisation bias could account for the much observed inertia in the policy setting by central banks. Historically, at least, central banks have preferred to make a series of small interest rate changes in the same direction, rather than the larger discreet adjustment suggested by optimal policy modelling[228]. Until recently, the observed inertial behaviour by central banks was often interpreted as evidence of the sub-optimality of actual monetary policy making[229] (Woodford, 1999b). The new literature on the stabilisation policy suggests that central bankers may have been right all along to set interest rates with inertia, as they have contributed to the credibility of announced policy.

## 4.4 COULD RULES BE IMPLEMENTED?

At least in developed countries, the academic emphasis on rules since the late seventies also came at a time of broader social and political demand for restricting discretion in social policy by adopting rule-like behaviour, owing to a number of factors (Friedman, B.M., 2000; Taylor, 1998a): Firstly, the desire emerged for less short run political pressure on economic policy. This desire has found expression not just with respect to monetary policy, but also in other elements

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[226] A purely forward looking targeting rule yields a recommended path for the policy instrument that extends beyond the next decision date. However, there is usually no requirement that this recommended interest rate path be implemented beyond the next decision date. What is more, the literature on the stabilisation bias has shown that the change in the interest rate path at subsequent decision dates is systemically predictable by the public. Consequently, the public would not regard the initial commitment to the recommended interest rate path as credible, so undermining the conditional forecasts of the target variables based on the credible implementation of that interest rate path. The stabilisation bias, therefore, implies an internal inconsistency in a purely forward-looking targeting rule (Woodford, 1999a).

[227] This does not mean persisting with an instrument path should the central bank's understanding of the transmission mechanism change. However, the timeless character of targeting rules (described above) prevents opportunistic policy changes, and hence time-inconsistency, under such circumstances.

[228] Goodhart (1996) provides evidence of interest rate smoothing at prominent central banks.

[229] The various *ad hoc* explanations of this sub-optimality include: a lack of political will at the central bank to make unpopular decisions, or the fear that a sharp policy reversal would be seen as implicit criticism of earlier policy decisions. However, these and other rationalisations of the observed interest rate inertia have failed to provide a rigorous account of a widespread phenomenon.

of macroeconomic policy, especially fiscal policy. Secondly, the desire emerged for greater accountability by, for example, increasingly independent central banks. Forward looking feedback rules allow the public to evaluate the stance of policy at any point in time despite the long transmission lags in macroeconomic policy. Accountability also requires greater clarity in the explanation of policy decisions, and this desire for improved transparency constitutes a third reason for increasing the desire for policy rules.

Fourthly, rule-like behaviour reduces public uncertainty over the likely decisions by policy makers and removes the "mystique" that Paul Volcker recommended to Mervyn King. This is especially important for the attempts by financial markets to discount likely shifts in monetary policy. Finally, the consistent application of a policy rule yields a benchmark over time which facilitates both future policy decisions and more accurate policy expectations on the markets and by the public (Taylor, 1998a).

An academic controversy has, however, built up around the question of whether independent central banks are able to commit to rule-like behaviour. One position – argued for example by Chari, Kehoe and Prescott (1989) – is that there are no commitment technologies available to independent central banks that would prevent them from re-optimising every period, i.e. from opting for discretionary policy. On the other side Kydland and Prescott (1977), Taylor (1993) and McCallum (1995) have argued that since independent central banks are aware that committing to rule-like behaviour yields superior outcomes over time, there is no reason why they would not find a way to make the requisite commitment. Indeed, Blinder (1998) claimed that central bankers have lately been very successful in fighting off the temptations of time inconsistency. And Bernanke, Laubach, Mishkin and Posen (1999) report case studies to show how independent central banks have used feedback rules like money targets and inflation targeting with considerable success to this end since the eighties.

Another objection to the adoption of rules in practice is that there is a trade-off between commitment and flexibility. Contra this view, McCallum (1999: 1490) has argued that if an independent central bank can adopt a rule-like policy framework then, "... there is no necessary (i.e. inescapable) trade-off between 'flexibility and commitment', as has often been suggested." This is not to suggest that potential dynamic inconsistency is irrelevant or unimportant; only that the temptation for dynamically inconsistent behaviour is not irresistible and one way of resisting - which has been gaining ground in practice – is the adoption of rule-like policy frameworks, especially inflation targeting. On this account, two cheers seem in order for feedback rules in

monetary policy, but a third cheer is suppressed when the question of the precise specification of the rule is posed (as discussed above). The difficulties raised by this question explains not only the continuing debate on the theory and practise of monetary policy (McCallum, 1999), but also the continued role for policy makers in the application of the policy rule.

A major reason for the continued existence of central bankers with the power to implement policy rules flexibly is epistemological, i.e. the difficulty of "... specifying a complete set of rules to follow under all contingencies" (Walsh, 1995: 156). Monetary authorities will always apply a rule flexibly, with the rule forming a framework in which their decisions are anchored. As mentioned in section 4.2, this flexibility (or discretion) of the policy-makers is defined precisely because the rule is defined, i.e. discretion relative to the policy framework[230] (Taylor, 2000b). The 'normal' behaviour of the Central Bank as well as its 'discretionary' decisions are, accordingly, rendered intelligible, and hence potentially transparent; and if potentially transparent, then potentially accountable[231].

This flexible application of a feedback rule contrasts with "discretionary" policy, where policy makers search for an optimal response of policy instruments to the state of the economy in each period, without attempting to follow a reasonably well-defined contingency plan over time. But this is not to say that the contingency plan can be altogether fuzzy, or that any sustained deviation from the rule could be interpreted as a discretionary deviation. Firstly, a vague policy like "leaning against the wind" does not amount to an intelligible contingency plan[232],[233] (Taylor, 1993: 1987). The transparency of monetary policy also rises when the contingent plan becomes more specific[234]. Secondly, if deviations from the rule dominate the rule – in the sense that the

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[230] By implication, the policy rule still has "substantive content" even when the authorities are exercising discretion (Taylor, 2000b: 6). Bernanke and Mishkin (1997) uses the term "constrained discretion" for this flexible application of a policy rule. Taylor's nomenclature is preferred here as it focuses on the systematic part of the policy, but there is nothing fundamental in the distinction.

[231] Accountability and transparency are discussed extensively in part III of this dissertation.

[232] "It is not specific about what the wind is, how one measures it, or how much one leans against it. Only by being specific about which variables that [the] Central Bank reacts to (the inflation rate, real GDP, the exchange rate, and so on) and about the size of the reaction to these variables, does such a policy become a meaningful policy rule" (Taylor, 2000b: 7).

[233] Whereas a vague plan like "leaning against the wind" could, for example, contain a clause like: "raise the interest rate when inflation expectations rise," a contingent plan would specify, at a minimum, that the interest rate needs to be raised more than one-to-one with the rise in inflation expectations. If monetary policy fails to adhere to this basic prescription then policy changes could be disruptive, even though the direction of policy changes were correct (Taylor, 2000b).

[234] In other words, the positive use of policy rules, i.e. its use to predict and explain actual policy decisions, serves an important political goal. The importance of transparency for money policy, especially in an era of independent central banks, is explored in chapter 8. Nevertheless, this positive use of the policy rule is conceptually distinct from the normative role played by the rule in the policy process.

bulk of the instrument variability is no longer predictable by the rule – then the rule has lost the role of guiding policy decisions.

Rules are not only incomplete due to the inability of policy makers to anticipate all contingencies, but also because there is no general agreement on the "true" model for monetary policy analysis. Monetary policy models are beset by many problems, including (McCallum, 1999): disagreement about money demand theory; debate over the dynamic interaction of real and monetary variables in an economy[235]; attendant difficulties in modelling other macroeconomic variables (like consumption and investment expenditure); and, especially for small open economics, the empirical challenge of modelling exchange rate fluctuations.

The problems mentioned in the last paragraph provide little cheer for those seeking an 'optimal' policy rule derived from a true model of the transmission mechanism. Instead, macroeconomists like McCallum (1999), Blanchard and Fischer (1989) and others, have promoted a research programme searching for simple robust policy rules that yield satisfactory outcomes under many different contingencies and given different underlying models of the economic behaviour. Such robust rules do exist[236], and in chapter 5 the information inclusive forecasting strategy of inflation targeting is described as one such robust rule.

Despite the apparent robustness of simple policy rules, their successful implementation could still be undermined by a number of technical problems facing monetary policy makers, including: information lags and uncertainty about the potential GDP. Policy makers only know the state of the economy with a lag. Consequently, policy rules have to draw on lagged observations or forecasts of input variables. Happily, Taylor (1999b) reports that a number of different simulations have found rules to perform well even if the input data was not contemporaneous.

Potential GDP plays an important role in many simple rules as a constitute part of the output gap – and the importance of the correct specification of potential GDP was mentioned above. However, potential GDP is very difficult to measure in practice. Both McCallum and Nelson

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[235] McCallum's (1999: 1491) sobering conclusion is that there are "... dozens or perhaps hundreds of competing specifications" of the dynamic relationship between monetary and real variables.

[236] The disagreement between macroeconomists should not be overstated. Recently Taylor (1998a; 2000a) listed five principles on which there is broad agreement amongst macroeconomics – even as they disagree on other issues – and which have guided the research and application of monetary policy rules. Firstly, neo-classical growth theory provides a good description of the long run development of an economy's productive capacity. Secondly, there is no long run trade-off between inflation and unemployment. Thirdly, there is a short run trade-off between inflation and unemployment. Fourthly, expectations respond endogenously to policy adjustments and matter greatly for the evaluation of policy. From these four principles Taylor derives a fifth, i.e.: monetary policy should use a contingent rule to attain a low inflation target over an appropriately long horizon.

(1999) and Estrella and Mishkin (1997) demonstrated the potentially serious policy mistakes that follows from large errors in estimating potential GDP. In an important extension of the research Estrella and Mishkin (1997) also demonstrated, however, that the uncertainty about the potential GDP is additive (not multiplicative). Consequently, the functional form of the policy rule is unaffected by the presence of uncertainty of potential GDP (Taylor, 1999b).

Evidently, monetary authorities have to overcome many problems when they adopt a rule. Ultimately, however, the test of monetary policy rules is whether they have worked well when implemented. To this end John Taylor (1999b) examined the historical evidence for developed countries internationally. His results are favourable for rules, i.e. both inflation and real economic activity were more stable under rules than under discretionary monetary policy regimes. The literature summarised in Bordo and Schwartz (1999) carries a similar message.

## 4.5 MONETARY POLICY RULES IN DEVELOPING COUNTRIES

Though monetary policy (either explicitly or implicitly) has increasingly become rule-like in the developed world, the jury is still out on the case of applying contingent rules for monetary policy in developing countries. Taylor (2000b) has recently argued that policy rules are similarly beneficial in developing countries, as they have been for monetary policy in developed countries. Indeed, he argued (more controversially) that, for a developing country, other than adopting a permanently fixed exchange rate "...the only sound monetary policy is one based on the *trinity of a floating exchange rate, an inflation target, and a monetary policy rule*" (Taylor, 2000b: 3, emphasis in the original).

However, there are structural features which may suggest different rules for developing countries, even if the efficacy of rules, as such, is accepted. A first practical issue is whether a developing country monetary policy rule should be specified in terms of monetary aggregates or nominal interest rates. The issues are the same as those considered by Poole (1970) – mentioned above - only the judgement may be different in practice: in developing countries with very high and variable rates of inflation, interest rate uncertainty may dominate velocity uncertainty, hence suggesting consideration of a money supply rule (Taylor, 2000b).

In the South African case, velocity uncertainty is often mentioned as an important practical reason for abandoning money growth targets in favour of inflation targets[237] (for example, van den Heever, 2001). The following table shows the relative fluctuations of broad money (M3)[238] velocity and the long-term interest rate[239] domestically (the standard deviation of each series is shown, scaled by its mean).

*Table 4.1* *Relative volatility of interest rates and M3 velocity*

| | 1970-1979 | 1980-1989 | 1990-1999 |
|---|---|---|---|
| Eskom interest rate | 15.1 | 15.0 | 7.6 |
| M3 velocity | 10.5 | 8.6 | 10.6 |

Applying Poole's (1970) reasoning domestically adds support for using an interest path as operational variable in their specific targeting rule since the nineties. Prior to that, though, this back-of-the-envelope calculation lends support for the emphasis on monetary growth targets suggested by the de Kock commission (1985) during the eighties. Further, it is only long-term interest rates that became less volatile than the velocity of money during the nineties; short-term interest rates have remained more volatile with a scaled standard deviation of 14.6% during the last decade.

The inclusion, or otherwise, of the exchange rate in the policy rule is an important practical issue for policy makers in developing countries. Domestically, the SARB's likely response to exchange rate fluctuations is frequently the topic of public and professional discussion (for example: Ensor and Seria, 2003). Though a flexible exchange rate regime is a necessary condition for adopting a domestic nominal anchor like an inflation target, this does not mean that policy makers can, or will, ignore the exchange rate in their pursuit of the domestic target. Since developing countries are typically more open to trade in goods and services than large developed countries (Agénor and Montiel, 1999), the exchange rate plays an important role in the monetary transmission mechanism.

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[237] Whereas velocity uncertainty is a valid reason for preferring an interest rate rule over a money supply rule, it is not a valid reason for discriminating between the rival intermediate targets (money targets versus inflation forecast targeting). In fact, the uncertainty over the real interest rate (and hence aggregate expenditure) may be such that, in a real setting, a money supply rule may be the most efficient way of pursuing the inflation target (Taylor, 2000b).

[238] Neither M1 nor M2 gave materially different results.

[239] This follows Goodfriend's (1991) argument - mentioned above - that monetary policy affects the economy mainly through its impact on the long term interest rate.

Various studies (for example, Ball, L., 1999; Batini, Harrison and Millard, 2000; and Svensson, 2000) have considered the impact of including the exchange rate explicitly in the policy rule for a small open economy. Some, like Ball (1999), find that inclusion of the exchange rate in the policy rule improves the overall performance in terms of inflation and output variability. Similar results were found by Batini, Harrison and Millard (2000) and Svensson (2000), though the effect is rarely large. For Taylor (2000b), this literature suggests that though exchange rates matter in the simulations which are the stock of new normative economics, the effects are small with the current models and with loss functions restricted to the variability of output and inflation.

In summary, both the instrument and the nature of the loss function are more contentious in developing countries than in the developed world. Nevertheless, the inclusion, or otherwise, of the exchange rate does not seem to matter greatly in practice; though its inclusion would improve the performance of policy rules in developing countries in principle (as it does in simulations). Secondly, where capital markets are sufficiently developed to discount both policy and economic fundamentals efficiently (as has become the case in South Africa since the deregulation that followed the De Kock commission's report), specific targeting rules can be specified using interest rate paths, as is done in developed countries.

## 4.6 CONCLUSION

Economists and central bankers have learnt a number of important lessons about the use of rules in monetary policy over the last two decades (see for example, Svensson, 2002b; Taylor, 1999a; Taylor, 1999b). Firstly, rules have historically contributed to greater macroeconomic stability than discretionary monetary policy. Secondly, simple policy rules are more robust to model specification, which is an important feature given the uncertainty about the true model for the economy. Thirdly, simple policy rules are not only robust, but perform almost as well as the optimal rule for a given model. Fourthly, the performance of simple rules is not much compromised by information lags (of up to a quarter).

Fifthly, the "Taylor-principle"[240] is correct for new-Keynesian (or sticky price) models that mirror actual economies more closely than flexible price models. Sixthly, the policy rules should

[240] The "Taylor principle" states that the interest rate should respond more than one-for-one with changes in inflation, both to stabilise inflation and to ensure determinacy of the policy model (Taylor, 1999a).

consider the determinants of the policy goals, in addition to the policy goals themselves. For example, rules with both inflation and the output gap (as a determinant of future inflation) outperform rules that focus exclusively on inflation (see, for example Rudebusch and Svensson, 1999). Finally, policy rules should be timeless to avoid additional sources of time-inconsistency.

But there are also some unresolved issues (Taylor, 1999b). Firstly, should only expected inflation (as opposed to observed and expected) inflation enter the policy rules? Secondly, should the exchange rate be included directly in the policy rule? Thirdly, the presence of a lagged interest rate as input variable remains contentious, though a number of papers have recently reported results suggesting that a lagged interest rate could influence inflation expectations in a desirable manner by providing benevolent history-dependence (see, for example the literature summarised in Svensson, 2002b).

Over the last decade and more, central banks have shown increasing interest in (and have contributed to) the research on monetary policy rules, and many have adopted such a rule as a framework for monetary policy, especially in the implementation of inflation targeting (Taylor, 1998a). These developments have altered the character of central banking fundamentally. The opening paragraph of this chapter quoted Paul Volcker's advice to Mervyn King that good central banking requires "mystique". Instead, central banking in the nineties taught King (2000) that the "...mystery and mystique has given way to transparency and openness." The development and adoption of rules in monetary policy have contributed greatly to the defeat of "mystique", and the next chapter considers an increasing popular example of such a rule, that is inflation targeting.

# CHAPTER 5 INFLATION FORECAST TARGETING AS A MONETARY POLICY RULE

William Tell and Robin Hood were two late medieval champions of archery. The Swiss national hero, Tell, is famed for hitting an apple placed on his son's head by the cruel Habsburg sheriff of Altdorf. The hero of Sherwood Forest was a vagabond, but with an early English sense of sportsmanship, or so Sellar and Yeatman (1993 [1930]) would have us believe in their eccentric history of England. For example, they mention Robin's custom of sounding his horn unfailingly before shooting at the sheriff of Nottingham. The unhappy officer would then beat a hasty retreat, leaving our hero to "shoot the Sheriff running, which was more difficult".

This chapter shows how inflation targeting domestically, as elsewhere, can be interpreted as an example of a targeting rule, which is appropriately called "inflation forecast targeting." On this interpretation, inflation targeting does not represent an abandonment of intermediate targets for monetary policy. Rather, it represents the adoption of an optimal intermediate target[241]. An inflation targeting central bank has to hit a target more like Robin of Sherwood's than William Tell's. That is to say, the central bank has to uncover and then hit a moving target with time-lagged instruments. As any archer knows, Robin's target was not the running sheriff as such, but Robin's conditional forecast of where the sheriff would be when the arrow arrived. In contrast, William Tell's aim was true to his ultimate goal, the precariously placed apple. Like Robin, the SARB (South African Reserve Bank) cannot target its ultimate goal, the observed inflation rate, but only the SARB's conditional forecast of where inflation is expected to be when the full effect of monetary policy arrives.

This is not a deep point, and is trivially true of all cases in which partially controlled and moving goals have to be attained, over time, using time-lagged instruments. Nevertheless, the monetary authorities in South Africa have not always communicated this understanding of their task successfully, as discussed in section 5.1. This miscommunication is problematic, as it blurs the distinction between two dimensions of policy evaluation given a policy rule (including inflation targeting), i.e. it confuses the (backward looking) evaluation of the policy framework and the (forward looking) evaluation of the stance of policy at any particular point in time. Consequently, the public monitoring of monetary policy has been compromised.

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[241] This chapter is an extended version of du Plessis (2002b).

It is a serious problem, since public monitoring is essential for the transparency and accountability of monetary policy under inflation targeting. Transparency and accountability play pivotal roles in generating the potential benefits of inflation targeting which are discussed in section 5.2 below. Undermining the monitoring of inflation targeting risks compromising the very benefits South Africa's new monetary policy framework is supposed to deliver. Further, a misinterpretation of the target could lead to an inappropriate stance for monetary policy.

The SARB's interpretation of its inflation target is considered in section 5.1 where an argument is advanced that the SARB's internal use of the target is not always consistent with the manner of its communication. This is followed by a discussion of the theory of inflation targeting in 5.2 with an interpretation of inflation forecast-targeting as an example of the monetary policy rules described in chapter 4. Section 5.3 considers the implications of inflation targeting for stabilisation policy and is followed by a discussion of some technical details of an inflation targeting regime, relating to the specification of the target point or band and the role of escape clauses in section 5.4. Discussion of the supporting institutional arrangements is postponed until chapter 7.

## 5.1 THE SARB'S INTERPRETATION OF ULTIMATE AND INTERMEDIATE TARGETS

Aron and Muellbauer (2000) identify three monetary policy regimes in South Africa since the sixties. First came a liquid asset ratio-based regime where the SARB controlled interest rates and credit quantitatively. The implied quantitative restrictions on credit expansion led to significant disintermediation during the late seventies, contributing to the dissatisfaction which led to the de Kock commission's investigation into the domestic monetary policy regime. This commission delivered an interim report in 1978 and their final report in 1985 (De Kock Commission, 1985).

The gradual implementation of the de Kock Commission's recommendations through the first half of the eighties caused the monetary policy regime to evolve into what Aron and Muellbauer (2000) characterised as a cash reserves-based system. As per the recommendations of the de Kock Commission (1985), money growth targets (in the form of flexible ranges for broad money, M3) were used as a guideline for monetary policy from 1986 until 1998. Under the cash reserve system the SARB used its discount rate as chief policy tool in the pursuit of its intermediate target. The de Kock commission recommended the money growth target based on an observed correlation between nominal income and the money supply.

However, the financial liberalisation and gradual opening of the capital account of the nineties undermined the stability of this relationship, impairing the usefulness of money growth targets as guide for the stance of monetary policy[242] (Aron and Muellbauer, 2000; and van den Heever, 2001). The SARB responded to the increasing unreliability of its lodestar, by complementing it in what Aron and Muellbauer (2000: 2) described as an "particularly opaque" regime with a broader range of macroeconomic variables, including: the output gap, wage growth, the exchange rate, asset prices, fiscal policy and credit growth. In 1998 the SARB adopted a repurchase-based accommodation system and moved progressively towards "informal" inflation targeting. Accordingly the SARB used liquidity in the money market to signal its intentions for the level of short term interest rates, rather than setting the level directly[243] (Aron and Muellbauer, 2000).

Finally, inflation targeting was formally adopted as a framework for monetary policy in March 2000. With this decision, the Minister of Finance substituted a target range for forecasted inflation in the place of the monetary growth guidelines. This brought to a close what Governor Mboweni (1999: 400) called a period of "eclectic" inflation targeting and added South Africa to the growing list of countries, both developed and developing[244], that have formally adopted inflation targeting as a framework for monetary policy[245].

In South Africa, eclectic inflation targeting was preceded by a period of flexible money growth rate targets, following the recommendations of the De Kock Commission (1985) in the mid-eighties on the design and conduct of domestic monetary policy. As per the argument in Chapter 4, this recommendation was consistent with the criteria derived by Poole (1970) for selecting operational targets given the dominant shocks to the economy at that time. Money growth targets were subsequently used as an intermediate goal in attaining the ultimate goal of financial stability, with its two components of stable prices and stability in the financial sector (Mboweni, 2001a).

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[242] A more complex money demand function can still be specified for the nineties though, as was shown by Moll (2000), but the simple relationship between money aggregates and nominal income had broken down.

[243] Aron and Muellbauer (2000: 2) argue that though the cash and repurchase based systems differ in theory, domestic interest rates have remained greatly influenced by the SARB after the adoption of the market based system in 1998.

[244] A complete list is provided in the discussion of the international experience below.

[245] The academic and policy discussion on inflation targeting has been lively, more so perhaps internationally than in the South African literature, where some of the recent contributions are: du Plessis (2002b; 2003), Woglom (2003), Saunders (2003),Van den Heever (2001), Buys and Keeton (2001), Schaling and Schussler (2001), Mboweni (1999), Casteleijn (1999) and Jonsson (1999).

Though South Africans benefited from sustained dis-inflation during the nineties, the contribution of the intermediate money growth targets to this success remains unclear, as the targets were seldom attained. By 1998, the SARB introduced what Van den Heever (2001: 169) called "informal" inflation targets alongside the money growth targets, without specifying which of these were to take precedence. In this way, the observed difficulties with the money growth targets encouraged a gradual move towards an alternative anchor for monetary policy, culminating in the new framework of formal inflation targeting[246].

Instability of the money demand relationship, domestically, could certainly have contributed to increasing disillusionment with the monetary targets at the SARB, as elsewhere (Mishkin, 2000a). And it is reasonable to interpret the adoption of inflation targeting at least, in part, as a response to the judgement that the nature and transmission of disturbances in the economy no longer favoured money growth targeting over an alternative anchor for monetary policy[247]. However, the governor of the SARB, as well as economists at the SARB added an additional claim to this plausible history. Accordingly, the new framework for monetary policy did not substitute an improved intermediate target for the intermediate money targets which had fallen on ill times. Rather, the new framework had moved beyond intermediate targets as such, to target the ultimate goal of monetary policy, that is inflation directly. The evidence for this claim is provided in the following paragraphs.

The former Governor of the SARB, Chris Stals, described the new framework for monetary policy in an address to the Institute of Bankers in South Africa a year prior to the launch of the new policy regime. On that occasion he argued that the new policy regime would allow "...a more direct targeting of the ultimate goal, that is inflation in its own right" (Stals, 1999: 2). Tito Mboweni, the present Governor of the Bank, described the transition from money to inflation targets along similar lines on the occasion of the SARB's first semi-annual inflation report (March, 2001). In that document he interpreted inflation targeting to mean that "...the monetary authorities are now *targeting the rate of inflation directly* instead of following the previously applied 'eclectic' monetary policy approach in which intermediate objectives still played a prominent role" (Mboweni, 2001a: 1, my emphasis). And very recently (20 March 2003) the SARB's Monetary Policy Committee claimed that "In addition, the Reserve Bank wants to confirm that,

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246 A number of developing countries have, similarly, adopted inflation targets to anchor monetary policy following disappointments with alternative nominal anchors, especially with fixed nominal exchange rates in Asia and Latin America (Mishkin, 2000a; and Paulin, 2000).

247 See Table 4.1 and its interpretation in the previous chapter.

consistent with our inflation-targeting monetary policy framework, we have *no intermediate policy targets* or *guidelines*..." (Mboweni, 2003c, my emphasis).

Johann van den Heever (2001: 176) writing at the Bank, though not on behalf of the Bank, argued similarly that with inflation targeting the monetary authorities were "discarding the use of subtle intermediate variables and nuances..." And when Schmidt-Hebbel and Tapia (2002, Table 4) posed the following question to the SARB in a survey of institutional arrangements at inflation targeting central banks: "Are inflation forecasts used as intermediate policy targets?" the SARB answered "No."[248]

On the basis of the evidence cited above, the SARB could be likened to a self-styled William Tell: taking direct aim at the ultimate goals of monetary policy. The following sub-section will show that such an interpretation of the SARB's inflation target is both unreasonable and potentially dangerous. The SARB should not only set policy like Robin Hood, with the aid of conditional targets, but also be open about this approach to the public[249].

## 5.2 INFLATION FORECAST TARGETING

Since the pioneering implementation of inflation targeting in New Zealand during 1990, it has become a popular framework for monetary policy in both developed and developing countries. This has contributed to, and has in turn been supported by the four empirical observations on modern central banking made in chapter 3. The following developed countries have implemented inflation targeting: Australia, Canada, Czech Republic, Hungary, Iceland, Israel Korea, New Zealand, Norway, Poland, Sweden and the United Kingdom, while the following developing countries have done likewise: Brazil, Chile, Columbia, Mexico, Thailand and South

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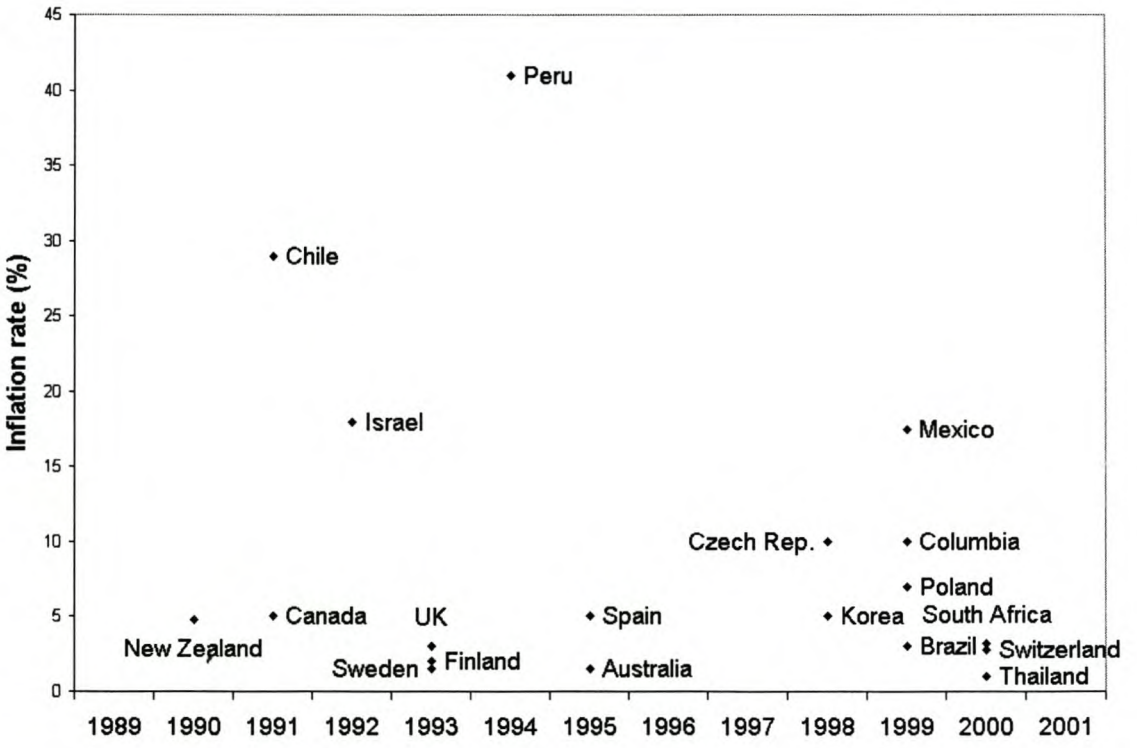
[248] The importance of this survey must not be overstated. Though Schmidt-Hebbel and Tapia are respected scholars in the field, these surveys of central bank practise are not unfailingly accurate, and this particular survey has been criticised by senior officials at the SARB (who have distanced themselves form the responses apparently given on behalf of the SARB). One concern with the survey is that central banks like the RBNZ and the Bank of England that are generally accepted as being forecast targeters also seem to have denied using an intermediate target. This last observation undermines the reliability of the Schmidt-Hebbel and Tapia survey at least until the reasons for the responses the RBNZ and the BoE have been uncovered.

[249] It is argued below that the SARB probably sets policy using a conditional forecast, but often explains policy as if an ultimate target guided the decision. The claim is not that that SARB misunderstands inflation targeting, but that it often miscommunicates the regime. Such a miscommunication undermines the very transparency which inflation targeting is supposed to enhance.

Africa. Figure 5.1 is a timeline showing the date and rate of inflation at which the various central banks adopted inflation targeting[250].

In addition to the rising number of adherents to inflation targeting, Sterne (1999) observes, strikingly, that no inflation targeting country has, as yet, abandoned the framework. This stands in stark contrast with the history of other explicit nominal anchors such as exchange rate pegs and money growth targets and this evidence is considered more fully in chapter 6 where the first decade of inflation targeting is evaluated.

*Figure 5.1 Timeline of countries adopting inflation targeting*




Source: Data from Mishkin and Schmidt-Hebbel (2001).

### 5.2.1 *Characteristic features of an inflation targeting regime*

Like other institutions, monetary policy frameworks, do not admit of exact definitions, as they respond dynamically to local conditions. However, it is possible to define a few benchmark

[250] Since there is disagreement on when a monetary policy framework should be labelled as "inflation targeting", such a selection is necessarily controversial. Landerretche, Corbo and Schmidt-Hebbel (2002: 2-3) explain this uncertainty over the set of inflation targeters by reference to the evolutionary character of inflation targeting. Most inflation targeters, so they claim, add the full complement of institutional arrangements that constitute fully-fledged inflation targeting only gradually.

characteristics within which the universe of inflation targeting regimes lies. It is the necessary imprecision of this exercise that causes some disagreement in the literature on which countries to identify as full-fledged inflation targeters. Fortunately, this issue does not derail the progress of this dissertation as South Africa is invariably included amongst the full fledged inflation targeting countries (see for example, Carare and Stone, 2003; and Mishkin and Schmidt-Hebbel, 2001). The typical characteristics of full fledged inflation targeting regimes are introduced in the following paragraphs.

*Firstly, public announcement of an explicit target.* The ultimate goals of monetary policy were rarely stated explicitly before the advent of inflation targeting. The latter policy framework has been characterised by an explicit statement of the ultimate goals of the policy framework in terms of explicit point or range targets for specific price indices (Amato, Morris and Shin, 2002; Mishkin, 2000a). As described below, this explicit statement of the goals of monetary policy is at once a statement of the general targeting rule described in the previous chapter.

*Secondly, the absence of alternative nominal anchors*: Adopting inflation targeting as a policy rule means eschewing alternative nominal anchors, such as the exchange rate or monetary growth (Sterne, 2001). This negative requirement could also be reformulated positively as an "institutional commitment" to the inflation target as primary goal of monetary policy (Mishkin, 2000a). This does not mean that either monetary growth or the exchange rate becomes irrelevant in the setting of monetary policy. Rather, these alternative nominal anchors cannot be pursued instead of, or in conflict with the inflation target. However, money growth and the exchange rate remain important variables for the specific targeting rule that specifies how that stance of policy responds to present and likely future developments in the economy.

*Thirdly, Government's recognition of an explicit target for monetary policy* – whether in the constitution, another statute such as the Reserve Bank Act, or as a political commitment – is a central feature of inflation targeting. The history summarised in chapter 3 confirmed the hypothesis that monetary authorities in the developed world have long struggled to maintain price stability. Fiscal dominance lurked behind much of this unhappy history (Dornbusch, 2000). In the developing world the fiscal cause of inflation has been amplified by relatively small tax bases, both due to the level of development and the typical tax structure in developing countries[251] (Agénor and Montiel, 1999). Government's recognition of the inflation target, with its implied fiscal restraint,

[251] A recent extensive panel data investigation of the inflationary consequences of fiscal deficits by Catão and Terrones (2003) confirmed a robust and positive relationship between high inflation and high fiscal deficits, especially for developing countries.

has therefore been seen as a crucial precondition for the implementation of inflation targeting in developed and developing countries alike (Sterne, 2001: 8-9).

*Fourthly, a forecasting strategy*: The control lag in monetary policy implies that inflation targeting central banks use a conditional forecast for inflation as an intermediate target. To that end, the central bank must develop the econometric capacity for generating joint structural forecasts of inflation, the output-gap and other variables relevant for the path of the price level (Masson, et al., 1997). The Bank also needs to develop a methodology to compliment the structural model with relevant off-model information in an optimal use of information in the forecasting process. Bernanke and Mishkin (1997) suggested the term "information inclusive" forecasting strategy for this combination of structural and off-model information employed by inflation targeting central banks.

*Fifthly, a communications strategy*: An extensive communications strategy to inform the public of the goals, contingent plans and operational decisions of monetary policy, has become a central feature of inflation targeting (Mishkin, 2000a). This communications strategy is meant to improve the transparency of monetary policy in the hope of delivering two benefits described below: firstly, it should help to shape private sector expectations of monetary conditions, and secondly, improve accountability of the central bank (IMF, 2000a). The extensive communications strategies by inflation targeting central banks (including inflation reports and detailed policy discussions) are discussed below.

*Sixthly, increased accountability*: the combination of a transparent policy procedure and an explicit targeting rule implies that full-fledged inflation targeting is characterised by a high degree of accountability (Mishkin, 2000a).

Whereas the above are institutional arrangements that typify inflation targeting regimes, we could also inquire about other macroeconomic characteristics of inflation targeting countries. With this in mind, Mishkin and Schmidt-Hebbel (2001: 5-8) used a multivariate probit model to examine the relationship between various macroeconomic variables and the likelihood of adopting inflation targeting. Their sample consisted of a panel of 27 countries for 10 years (1990-1999 inclusive), of which 18 were considered to be inflation targeting[252], and 9 non-targeting[253]. Hu

[252] The inflation targeting group consisted of: Australia, Brazil, Canada, Chile, Columbia, Czech Republic, Finland, Israel, Korea, Mexico, New Zealand, Peru, Poland, South Africa, Spain, Sweden, Thailand and the UK.

[253] The non-targeters were: Denmark, France, Germany, Italy, Japan, Norway, Portugal, USA and Switzerland.

(2003) investigated the same relationship using a multivariate logit model and a broader data set comprising 66 countries (of which 22 were inflation targeters) for the period 1980-2000.

Mishkin and Schmidt-Hebbel's (2001: 6-8) probit analysis yielded the following results: Over the sample period there was a significant and positive relationship between the likelihood of adopting inflation targeting and the level of the inflation rate. This result is not at all surprising if the sample is considered closely: the non-targeting third of the sample are essentially those developed countries which now form the EMU (and Denmark which pegs the Krona to the Euro) Japan, Norway, Switzerland and the USA. Lacking inflationary concerns, these countries had little motivation to undergo the implicit and explicit costs of institutional change required by adopting inflation targeting.

The event confirmed the expectation that those countries with a less shining record on inflation have the greater relative incentive for considering institutional change of their monetary policy regime. Moreover, when the sample of countries is widened to include other developing countries, then the inflation targeters and the industrialised non-targeters (Japan, Norway, Switzerland and the USA) have, on average, benefited from a better inflation experience than the rest of the world.

Hu's (2003) logit regression output questioned the significance of Mishkin and Schmidt-Hebbel's (2001: 6-8) result in this regard. Whereas a number of early inflation targeters – Chile an Israel are obvious examples – used inflation targeting as a vehicle for disinflation, most recent targeters only adopted inflation targeting once domestic inflation had already declined to low levels.

This issue is considered in greater detail in chapters 6 and 7, but a tentative conclusion at this point is that some developed and developing countries adopted inflation targeting either to lock in low inflation or to join the group of low inflation countries. Recently, the strategy of locking in low inflation has dominated the disinflationary strategy, and with notable success (Mishkin and Schmidt-Hebbel, 2001). Meanwhile the remainder of the developed countries had little incentive to undertake deliberate and far reaching institutional change of this sort.

For inflation targeting to function as a nominal anchor, monetary policy must be free from fiscal dominance. The latter frequently results from an unsustainable fiscal stance. Insofar as a fiscal surplus is a proxy for a sound long run fiscal position, it can also proxy for the absence of fiscal

dominance. Indeed, this is how Hu (2003) interpreted the significant positive coefficient on the fiscal surplus in his logit analysis.

In contrast with Hu's (2003) result, Mishkin and Schmidt-Hebbel (2001: 6-8) found an inverse relationship between the fiscal surplus and the probability of adopting inflation targeting. This factor was not, however, statistically significant at conventional levels. The contrasting results seem to follow from the different data set used by Hu (2003). Mishkin and Schmidt-Hebbel's (2001: 6-8) control group comprises non-inflation targeting industrialised countries, and fiscal dominance is rarely experienced in these countries. However fiscal dominance does occur in the developing countries included in Hu's (2003) data (Agénor and Montiel, 1999). Whereas Hu's (2003) result captures the absence of fiscal dominance in the inflation targeting countries, Mishkin and Schmidt-Hebbel's (2001: 6-8) result indicates that within the group of countries free from fiscal dominance, the benefit of institutionalising the nominal anchor seems less pressing for those countries with a history of sound fiscal policy.

Both Mishkin and Schmidt-Hebbel (2001: 6-8) and Hu (2003) found a significant and positive association between a country's trade-openness and it's likelihood to target inflation. This is consistent with the observations in chapter 3, according to which open economies[254] face the impossible trinity, and require a nominal anchor under a floating exchange rate regime, and inflation targeting may provide this. This interpretation is consistent with the significant positive association between *de facto* floating exchange rates and the likelihood to implement inflation targeting found in Hu (2003). And this last result is, in turn, consistent with the positive association between the width of the exchange rate band and the likelihood of inflation targeting in Mishkin and Schmidt-Hebbel (2001: 6-8).

Hu (2003) also investigated a possible association between a country's economic growth record and the likelihood of adopting inflation targeting. He found a significant and negative association and interpreted this as indicating that countries with a poor general record in macroeconomic policy (proxied for by the economic growth record) have greater incentive to adopt inflation targeting. The same argument supports the inclusion of a significant and positive real interest rate coefficient in Hu's (2003) final model.

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[254] The impossible trinity was formulated with reference to openness on the capital account, not the current account. A high degree of trade openness is here taken as a proxy for an economy highly integrated in the world economy, including both capital and trade accounts. There are important exceptions – China, for example – which make this association tentative at best.

Mishkin and Schmidt-Hebbel (2001: 6-8) also investigated the relationship between various specifications of central bank independence and the likelihood of adopting inflation targeting. In short, they find a significant positive relationship between the likelihood of adopting inflation targeting and instrument independence for the monetary authorities, but the opposite relationship for goal independence. Their explanation for this negative association is that goal independent central banks tend to choose alternative nominal anchors, such as money growth targets or a nominal exchange rate peg. Chapter 8 considers these issues at greater length.

In summary, given the experience of the last ten years a vague picture of a "typical" inflation targeting economy can be drawn: such a country is typically a small open economy with a *de facto* floating exchange rate, a low rate of inflation (but often a poor inflation record), a history of macroeconomic instability, sound fiscal position, a goal dependent but instrument independent central bank.

### *5.2.2 Expected benefits of inflation targeting*

The previous section mentioned the comparison of the expected with the institutional cost implied by inflation targeting. Despite the cost of institutional change an increasing number of central banks have joined the ranks of full-fledged inflation targeters since 1990. In South Africa, too, the benefits and costs of inflation were widely discussed before the policy regime was adopted in February 2000. Towards the end of 1999, the Governor of the Reserve Bank published an article in the *South African Journal of Economics* (Mboweni, 1999) to share his understanding of what the regime change would entail, as well as to list the following three expected benefits of inflation targeting.

1. Firstly, better co-ordination of the different aspects of macroeconomic policy domestically, especially of fiscal and monetary policy[255]. The SARB's instrument independence is guaranteed, but this independence is used to pursue a monetary policy goal set jointly with the government (and therefore not at variance with the political process)[256]. Central bankers

[255] Sims (2003) demonstrated the theoretical possibility of equilibriums where inflation targeting monetary policy becomes powerless to prevent an inflationary or deflationary spiral caused by inappropriate fiscal policy. The co-ordination of fiscal and monetary policy is therefore not merely a benefit of successful inflation targeting, it is a pre-requisite for that success.

[256] There are three important instances where the Government has failed to support inflation targeting with complementary policy. Firstly, administered prices have not been constrained by the inflation target (Schaling and Schussler, 2001) and secondly, unindexed capital gains tax leaves the National Treasury to gain from higher inflation, and finally, labour legislation has made nominal wages more sticky domestically. These factors are discussed more fully in chapter 7.

with experience pre and post inflation targeting sometimes comment on what they regard as a profound change in the way that monetary policy fits into the entire macro-economic policy mix. Two inflation targeting pioneers, Don Brash at the Reserve Bank of New Zealand (RBNZ) and Gordon Thiessen at the Bank of Canada (BoC), described this change in the policy mix as follows:

> "If the government stipulates an inflation target that it wants the central bank to deliver, it implicitly states that if fiscal policy is eased in a way that is inconsistent with that inflation target, the central bank will of necessity tighten monetary policy" (Brash, quoted in: Sterne, 2001: 7)

> "[Inflation targeting] changes the way you make decisions and the way you describe decisions and I must say from my personal point of view it has changed enormously my relationship with the House of Commons standing committee. Having an agreed target just changes the whole nature of these discussions and I think makes monetary policy more credible, more understandable, and less an issue of controversy than it was before." (Thiessen, quoted in: Sterne, 2001: 6-7)

2. Secondly, the transparency of monetary policy should improve, as the operational and ultimate goals of monetary policy are seen to be the same, i.e. low and stable inflation. This gain in transparency is often associated with greater clarity regarding the objectives and implementation of monetary policy under inflation targeting compared with alternative anchors, especially money growth targeting (van den Heever, 2001: 170-171).
3. Thirdly, though a gain in transparency is self-evidently valuable in a democratic society, it increases, additionally, the accountability of the monetary authorities. The inflation target is an explicit numerical target and the public is therefore able to monitor the policy's implementation and hold the authorities to account for their policy decisions (Haldane, 2000: 10).

The SARB's inflation report of March 2001 (SARB, 2001: 4) adds two further expected benefits to the list; they are:

4. The credibility of monetary policy could be enhanced by an improved co-ordination with other aspects of macroeconomic policy on one side, and greater transparency and accountability to the public on the other. Whereas credibility reduces the potential inflation bias in discretionary monetary policy, accountability provides a positive incentive for the central bank to stick to its target. If credible, the inflation targets will guide private sector inflation expectations, influencing price and wage decisions, and therefore, the realised

inflation rate[257] (Sterne, 2001). In this way, inflation targeting eventually generates an empirical measure of the credibility of monetary policy (Svensson, 1999a: 218-219). SARB governor Mboweni (2001: 1) emphasised the importance of monitoring under inflation targeting and its connection to the Bank's credibility with his claim that "...the inflation target gives the Bank a measurable aim in the conduct of monetary policy, and at the same time it is a yardstick against which our actions can be evaluated".

5. Inflation targeting provides an explicitly forward-looking framework for monetary policy. As per the previous chapter, this forward-looking focus avoids many of the adverse consequences of poor discretionary policy. In this way monetary policy may contribute to output stability as well as low and stable inflation[258].

Milton Friedman's (1968) general case against discretionary monetary policy also supports the case for inflation targeting.

6. Friedman's (1968) epistemological argument against discretionary monetary policy was based on the long and variable lags of the monetary policy transmission mechanism. It is this uncertainty about the transmission mechanism that undermines any attempt to use activist policy to dampen the cycle of real economic activity. Indeed, the necessary ignorance of policy makers will often lead to counterproductive results (adding to the instability of the economy) as a result of activist monetary policy. Inflation targeting contributes not only to low inflation, but also prevents policy-induced instability in the economy, by preventing the monetary authorities from exploring activist alternatives.

As mentioned above, at a practical level inflation targeting is sometimes pragmatically chosen due to failure of money growth targeting or an exchange rate peg. Consequently, Van den Heever (2001: 171) includes a seventh benefit from inflation targeting in the South African context:

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[257] Frank Shupp (2003) recently argued for the implementation of an incomes policy in South Africa, whereby government, business and labour would agree on price and wage adjustments, so allowing the SARB to pursue other goals (for example, real output growth) with monetary policy. Regardless of whether these other goals fall within the scope of monetary policy (and chapter 3 suggested that the level of real output, for example, is not) it is interesting to note that inflation targeting is an institutional (or decentralised) method for achieving the co-ordination that an incomes policy wishes to establish by law. In a forward looking framework and complex environment, the decentralised alternative holds significant advantages over the centralised incomes policy, on account of the extensive information requirements needed for and the unintended disincentives created by a centralised incomes policy.

[258] This observation by the SARB is important and corresponds with the international experience on inflation targeting. Low inflation is not the only goal under inflation targeting. In practise, inflation targeting central banks include an output gap in their loss function (Cecchetti, 2000: 43; and Svensson, 1999b: 624-625). It also accords with Governor Mboweni's (1999: 403) principle according to which "...it is important that the public does not get the impression that the central bank is dogmatic about the containment of inflation and does not care about other critical issues of importance to the economy."

7. Monetary policy would no longer be dependent on the problematic relationship between monetary aggregates and the aggregate price level. Abandoning money targeting as a potential nominal anchor removes one of the three main candidates for anchoring the aggregate price level. Van den Heever (2001: 171) – focussing on the history of monetary policy in South Africa – mentioned the instability of macroeconomic relationship which have undermined money targeting as an alternative, to which Eichengreen (2002) added that the "hollowing out" of exchange rate regimes (mentioned in chapter 3) left inflation targeting as the "leading candidate" for a nominal anchor in countries that have adopted floating exchange rate regimes.

Two questions related to this extension are examined below: first, whether an inflation target should reasonably be regarded as an ultimate or as an intermediate target. Second, if inflation targeting is another form of an intermediate target, is it a good intermediate target?

### *5.2.3 The theory of inflation targeting*

A small model is required to describe the central bank's decision problem under inflation targeting, in order to determine whether such a regime should be thought of as pursuing an intermediate or the ultimate target of monetary policy. This section follows the model in Svensson (1999a) closely. As per the convention developed in chapter 4, a general targeting rule is specified according to which the monetary authorities care about missing their inflation target, as well as about output deviations from potential output in every period. Formally, the central bank's aversion to these two undesirable events is assumed to combine in a quadratic loss function that expresses the Bank's loss in every period (t), as is shown in equation 5.1.

$$L_t = \frac{1}{2}\left[\left(\pi_t - \pi^*\right)^2 + \lambda\left(y_t - y_t^*\right)^2\right] \tag{5.1}$$

Where:

$L_t$: the loss in period t

$\pi_t$: the observed rate of inflation in period t

$\pi^*$: the inflation target

$y_t$: the log of output

$y_t^*$: the log of potential output (the output gap is $y_t - y_t^*$)[259]

$\lambda$: the relative weight given to stable output ($\lambda>0$)[260]

Since the central bank wishes to minimise the discounted value of losses in every period over an infinite horizon, the decision problem of the central bank will require an intertemporal loss function as shown in equation 5.2, with a discount factor of $\delta$[261]:

$$\sum_{\tau=o}^{\infty} \delta^{t+\tau} L_{t+\tau} \qquad (5.2)$$

Continuing with the convention adopted in chapter 4, the next step in the design of the monetary policy regime is to specify a specific targeting rule which specifies how the policy instruments would be set to achieve the goals of the general targeting rule. The day-to-day decision of the central bank is then reduced to choosing a path for the policy instrument (usually a short term interest rate) that minimises the intertemporal loss function subject to the constraints imposed by the structure of the economy; or in the language of chapter 4, an optimal specific targeting rule solves the Euler equations for the monetary policy problem (Cecchetti, 2000: 43; and Clarida, et al., 1999: 1670).

The following paragraphs follow a three stage procedure to analyse the general and specific targeting rules implied by the SARB's inflation targeting regime, in comparison with theory and with the international best practise. In each stage a progressively more general formulation of the loss function and the transmission mechanism is used. In stage one the assumption is that the central bank has perfect knowledge of the transmission mechanism that describes the effect of a change in the monetary policy on total output and the aggregate price level over time, that the transmission mechanism is deterministic, and that there are no other shocks that impact on the price level (for example, aggregate supply shocks or import price shocks), except those summarised in the transmission mechanism. Under these assumptions, the policy problem for an

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[259] The inclusion of the output gap means that the central bank cares about dampening the fluctuations of output relative to potential output. It does not mean that the central bank targets any particular level of output, and so avoids the unintended, but malevolent, consequences of targeting real output mentioned in chapters 3 and 4.

[260] When $\lambda$ is zero we have *strict inflation targeting*, i.e. the central bank cares exclusively about low and stable inflation. Few, if any, central banks would include such an extreme aversion to inflation in their policy design. Cecchetti (1997) used simulations of the Taylor curve to argue that strict inflation targeting would lead to unacceptably large output fluctuations. *Flexible inflation targeting* refers to the more general case where the $\lambda$ takes some positive value, and corresponds to the actual practise of central banks.

[261] The intertemporal loss function in equation 5.2 implies that the period loss function (output, potential output and inflation) is observed without error.

inflation targeting central bank becomes the simple one of setting the interest rate path to ensure that the first order condition is satisfied (i.e. equation 5.2 is minimised subject to the constraints of the transmission mechanism).

Van den Heever (2001: 173-174) describes the specific targeting rule used by the SARB in the pursuit of their general targeting rule as follows:

> "[the stance of] policy is formulated with a view to ensuring inflation outcomes within the target range. If it is felt that with *unchanged short-term interest rates* the inflation outcome in the target period will exceed the target, interest rates will be raised, and *vice versa* if undershooting of the target is expected" (van den Heever, 2001: 173-174, my emphasis).

The Monetary Policy Committee of the SARB's explanation (12 June 2003) for lowering the policy interest rate domestically describes a similar specific targeting rule to that described in van den Heever (2001: 173-174), but with the emphasis placed on comparing the forecasted inflation rate with the target range. The following is an extract from the report:

> "4.1 Projections of the likely rate of inflation for 2004, calculated by using the Reserve Bank's core and other forecasting models, indicate that on the policy stance to date, the average rate of increase in the CPIX will be close to the mid-point of the inflation target band in 2004.
>
> 5.1 Taking these factors into consideration as well as the widening of the differential between South African interest rates and those of our major trading partners owing to a general decline in international interest rates, the Monetary Policy Committee has decided to reduce the repo rate by 150 basis points to a level of 12 per cent per year effective from 13 June 2003." (Mboweni, 2003a)

The policy problem in stage one yields a policy rule much like van den Heever's (2001: 173-174) description. Two notable features of his specific targeting rule are: firstly, the use of a constant interest rate path in the specific targeting rule, and secondly, the use of inflation outcomes (as opposed to inflation forecasts) in the implicit reaction function of the SARB. The implication of the latter is explored in the next few paragraphs while the chapter returns to the former in section 5.2.4 below.

The strategy described in the previous section is optimal[262], as the monetary authorities focus policy on, and attain their ultimate goal of low inflation and stable output. It is the monetary policy equivalent of William Tell's challenge, but it is not the problem of central banks in practice; the stage one specification is based on a model which abstracts from important features

[262] Excepting the use of the constant interest rate reaction function, as mentioned in chapter 4 and as discussed in section 5.2.4 below.

of the central banker's problem, for example the uncertainty associated with the monetary policy transmission mechanism. Indeed Svensson (1999b: 627) describes the central bank's imperfect control of inflation as "... the greatest problem with inflation targeting" The usual suspects[263] responsible for this control problem are: long and variable lags in the monetary transmission mechanism, uncertainty about the channels of monetary transmission, uncertainty about the present state of the economy and likely future shocks to it, and the influence of factors other than monetary policy on the price level, particularly when these factors impact within the control lag of monetary policy (Svensson, 1999b: 627).

Since the loss function in equation 5.2 fails to account for the uncertainties mentioned above it needs to be reformulated in what constitutes the second stage of the analysis of targeting rules under inflation targeting. In the second stage the intertemporal loss function is augmented with an explicit recognition that it is the *expected* loss in each period that enters the central bank's decision problem.

$$E_t \sum_{\tau=0}^{\infty} \delta^{t+\tau} L_{t+\tau} \tag{5.3}$$

Where:

$E_t$: the expectation at t given the central bank's information

In equation 5.3 the optimising function is explicitly stochastic. The specific targeting rule described by van den Heever above needs adjusting in this second stage of the analysis to reflect that it is the purported solution to a dynamic optimisation problem under uncertainty. Indeed the choice of a target range for the South African inflation target may be an explicit recognition that this "outcomes based" targeting is undertaken in a stochastic environment. That seems to have been Mboweni's (1999b) argument when he introduced the new regime; in his words: "...the inflation target has been specified as a range or band because it affords the central bank some discretion in taking decisions on the monetary policy stance, and allows for a degree of uncertainty and statistical variability that is present in all economic processes" (Mboweni, 2000b: 8). Additionally, the SARB (2001) argued that the fan chart of forecasts for inflation (included in

[263] They are familiar from Milton Friedman's (1968: 15) penetrating observation that "...both the time lag and the magnitude of effect vary with circumstance. As a result, we cannot predict at all accurately just what effect a particular monetary action will have on the price level and, equally, important, just when it will have that effect". Ben Friedman (2000: 13) is more emphatic still when he argues that "...many important aspects of the economic circumstances in which a central bank's actions will be having their effect are, therefore, not just unknown but unknowable when the decisions governing these actions are taken".

the semi-annual Inflation Report) reflects the "...large degree of uncertainty" which surrounds an inflation forecast.

However, this interpretation of the SARB's specific targeting rule would imply serious monitoring problems. For example, it is not clear that the public would be able to monitor the implementation of this rule *ex ante*. An *ex post* evaluation is always possible, but the public will have to wait 18 to 24 months[264] before it can determine whether the stance of policy had been appropriate at the start of the control period. Even then, it would not be clear whether a success or failure in hitting the target was due to appropriate monetary policy, or due to other shocks impacting on inflation during the control period, or perhaps due to variability in the transmission mechanism. Bernanke and Woodford (1997: 1-2) summarised the problem succinctly as follows: "it is difficult for the inflation-targeting central bank to tell whether it is 'on track', it is equally difficult for the public and the financial markets to make the judgement, which has potentially adverse consequences for the central bank's accountability and credibility".

Evidently, it is not just technically more difficult to implement inflation targeting when uncertainty is introduced in the model, but monitoring is weakened; without monitoring, the accountability and transparency of the policy framework is compromised, as is the route to improved credibility for monetary policy. Without greater credibility the new policy's role as anchor for inflation expectations in business and labour contracts could also be undermined (Svensson, 1999b: 627). The central bank is facing Robin Hood's problem of hitting a running (stochastic) sheriff, in the wind (other shocks), based on an estimate of where the sheriff will be later in the day.

There are five potential solutions to this problem of monitoring the target in practice[265]. The first is that the central bank could stick with targeting observed inflation outcomes as an approximation[266]. Alternatively, the central bank could re-interpret its inflation target as a "forecast target" where the forecast was generated by combining the bank's own structural model and other off-model information, or where the target was the inflation forecast implicit in

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[264] This is an uncontroversial estimate of the average length of the monetary policy transmission mechanism (see for example, SARB, 2001 8).

[265] The first is due to Cechetti (1997) the next three to Bernanke and Woodford (1997) and Corné van Walbeek suggested the fifth.

[266] This would typically require an 'escape clause' which the Central Bank would use to explain an *ex post* missing of the target in exceptional circumstances (for example, a significant adverse supply shock). The present design of monetary policy at the SARB includes such an escape clause and this is considered in greater detail below.

the asset prices, or the inflation forecast of private sector or other independent forecasters. Finally, the central bank could target a price index that excludes the most volatile components of the CPIX, so improving its control over the price index. The next few paragraphs consider the first of these and the trio of forecast based targets[267].

The SARB is not ignorant of the danger posed by what Svensson (1999b: 627) calls the "formidable problem" of the lack of control over inflation in practice and the accompanying problem of monitoring a policy of inflation targeting. On the contrary, Van den Heever (2001: 171) is concerned that "...where forecasts turn out to be wrong, even if for completely unforeseen reasons, the central bank's credibility could be impaired"[268].

Nevertheless, in its public communications the SARB has agreed to the first of the five solutions mentioned above, i.e. to pursue an inflation outcome in particular calendar years as a target variable, with the width of the band (of 3 percentage points) reflecting the uncertainty implicit in the attempt to control the inflation rate using short term interest rates (van den Heever, 2001: 172). The merit of this approach is the apparent ease of communicating monetary policy with reference to a target specified as an observed inflation rate in a specific calendar year.

The disadvantage of the SARB's approach is that hitting their target in say the year 2003 is neither a necessary, nor a sufficient condition for a favourable judgement on monetary policy either in the year 2003, or indeed at any time since February 2000. It is not a sufficient condition since the uncertainty implicit in the monetary transmission mechanism and other shocks to the price level could cause a fortuitously favourable inflation outcome in any particular year. It is not a necessary condition; since missing the target could likewise be due to some unforeseen event even if forward looking monetary policy had been set correctly in preceding years.

The last paragraph may appear unjust given the subtlety of the SARB's strategy, and a more refined interpretation of policy practise suggests that the above-mentioned problem originates in the SARB's communications strategy: Forecasted inflation is extremely important in the

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[267] The final solution is considered in section 5.2.4.3 below.

[268] Governor Mboweni (2001a) added concerns of accountability to that of credibility due to this monitoring problem. In his words: "The numerical inflation target is announced explicitly to the public to indicate clearly what the Reserve Bank should be held accountable for and to make the application of this framework as transparent as possible...If the targets are not met, the central bank has to explain what went wrong" (Mboweni, 2001a: 6).

policymaking process at the SARB[269]. Indeed, the Monetary Policy Review (for example, March 2001) explains that the SARB uses its model-based inflation forecast and off-model information extensively in the policy setting procedure. And the extract from the MPC's policy explanation reproduced above demonstrates the central role of the SARB's inflation forecast. Nevertheless, the Bank emphasises publicly its commitment to hitting observed inflation outcomes, for example in the same monetary policy review mentioned above it is argued that: "inflation targeting... implies a responsibility on the part of the central bank to achieve a predetermined inflation *outcome*..." (SARB, 2001: 3, my emphasis) and "the Bank was able to... demonstrate its commitment to achieving the target for *2002*" (SARB, 2001: 22, my emphasis).

In the current communications strategy, the operational and monitoring goals of the SARB do not correspond. We are told that the SARB uses forecasting to set policy (using their operational target) and we are also told that monetary policy should be evaluated by reference to an inflation outcome (using their monitoring target for specific calendar years). This confusion arises from an omission to distinguish clearly, in the communications strategy, between two dimensions of evaluating inflation targeting, i.e.: the forward-looking evaluation of the stance of policy and the backward looking evaluation of the performance of the framework.

The present situation is unreasonable: the Bank cannot be held accountable for missing a variable over which it has at best partial control, nor can the Bank gain credibility from hitting such a variable[270]. And there is a remedy: the Bank could be held accountable if forecasted inflation deviates from some specified forecast target since the forecast would summarise the systematic and known effects over which monetary policy has an influence (Svensson, 1996: 8-9).

It is with reference to the lack of control and the monitoring problem that Haldane (2000) introduces the term "ghostbusting" for inflation targeting. His metaphor captures the idea that the central bank can only control its conditional inflation forecast relative to a specified target. This conditional forecast is a synthetic variable which can nonetheless be made observable to the public if published regularly[271]. Like ghosts, these conditional forecasts summarise systematic

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[269] In Schmidt-Hebbel and Tapia's (2002) survey of institutions and policy implementation at inflation targeting central banks the SARB allowed an important, though not irresistible, role to its inflation forecast in decisions on the stance of monetary policy.

[270] Jonsson ((1999: 17) considers this problem but argues that "... the increased transparency of monetary policy and the accountability of the SARB will to some extent address this problem." This is not logical, since it is precisely the accountability of the SARB which is at stake. If monitoring difficulties undermine accountability, as is argued in the text, then accountability cannot solve the monitoring problem.

[271] To be observable as a forecast the forecast must be accompanied by its underlying model, full information about the initial conditions and expected developments to the exogenous components of the model at the time of policymaking.

inflationary pressure that would result in observed inflation if the economy played out exactly as expected by the forecast.

Although the forecast will almost never be accurate in practice, the appropriate policy stance *ex ante* could nevertheless be determined by the comparison of the conditional forecast with the target for the forecast[272]. This explains why some of the prominent inflation targeting central banks, amongst them the Bank of England, have formulated their targets in terms of forecasted inflation. In effect, such central banks have adopted inflation-forecast targeting (Haldane, 2000: 6).

The deficiency of the first answer to the control and monitoring problem leads us to consider the three forecast-based solutions to the control and monitoring problem associated with inflation targeting. The two private sector based approaches are problematic for the same reason though: Suppose that a private sector forecaster cares about the accuracy of both his/her inflation forecast and his/her forecast of monetary policy. If the Bank targets the private sector inflation forecast (while revealing its instrument forecast) then the private sector inflation forecast would never deviate from the target in equilibrium[273]. Further, if forecasting were costly, then the private sector would have no incentive either to collect information or to forecast inflation actively (Bernanke and Woodford, 1997: 15-16). Consequently, practical forecast targeting requires an explicit structural forecast model at the Bank[274] (Bernanke and Woodford, 1997: 5, 47-49).

We are now in a position to answer the question posed above as to whether an inflation target should more reasonably be regarded as an ultimate or an intermediate target. Svensson (1999a; 1999b) and Clarida et al. (1999: 1684-1686) have shown that in a world with stage two uncertainty, an inflation forecast is a correct intermediate target given the uncertainty surrounding the inflationary process assumed in equation 5.3 above. Since the conditional

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[272] If the forecasting model is any good, and the conditioning variables were correctly set, then the observed deviations from the forecast will be non-systematic (Svensson, 1996: 9). Other shocks to inflation are non-systematic, by construction.

[273] Indeed at one of the first public meetings to explain the then new framework of inflation targeting to the financial community in the UK, the doyen of private sector economists in the UK, Samuel Brittan, asked whether (in the future) any inflation forecast, but 2.5% (the Bank of England's target) would be sensible?

[274] This does not mean that the Central Bank should ignore private sector forecasts as an input in their own forecasting exercise, only that the private sector forecasts should not be used as intermediate targets in the manner described below for the Bank's own forecasts. Nor does this observation deny the importance of private sector inflation expectations in measuring the credibility of monetary policy.

inflation forecast is under the Bank's control it could be used to solve the optimisation problem for the stochastic version of the loss function in equations 5.1 and 5.2 above.

Using the conditional inflation forecast as an intermediate target removes the control problem and, if the requirements for an optimal intermediate target are satisfied, the policy would not present any monitoring problems either. For Svensson (Svensson, 1999a) this result implies that "... optimal policy need only focus on conditional forecasts of the future target variables, forecasts conditional on the central bank's current information and a particular path for the instrument. Because this means treating the forecast as target variables, the procedure can be called *forecast targeting*" (Svensson, 1999a: 209, my emphasis).

Re-interpreting inflation targeting as "inflation forecast-targeting" has an important implication for the way macroeconomists classify this framework for monetary policy. Evidently the policy is not focused on an ultimate objective of monetary policy, but we have an intermediate target as a guide for monetary policy decisions[275].

The SARB's public interpretation is at variance with this theoretical result as well as with the international experience. The Reserve Bank of New Zealand (RBNZ) pioneered the implementation of inflation targeting internationally. It is, consequently, instructive to note that the RBNZ interprets their inflation target as an inflation-forecast target. With reference to the uncertainties discussed in this paper, the RBNZ's position is that "... better policy might be obtained by responding to expected future inflation pressures...for this reason, inflation targeting has often been referred to as *inflation-forecast targeting*" (Reserve Bank of New Zealand, 2000 6, my emphasis). Haldane's (2000) depiction of UK monetary policy as "ghostbusting" indicates that the Bank of England interprets inflation targeting to mean inflation forecast targeting, too. Similarly, the Bank of Canada explains that under inflation targeting "...monetary policy will therefore be directed to moving inflation to the target midpoint over a six- to eight-quarter horizon... policy aims at keeping the trend[276] of inflation at the 2% target midpoint" (Bank of Canada, 2001: 4).

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[275] In addition to Svensson's (for example Svensson, 1996; 1999a) strong advocacy of this point, the same result can be found in Haldane (2000: 6) or Cechetti (1997: 5).

[276] The trend of inflation is a statistical construct (like a conditional forecast) and is generated from the systematic causes of inflation as expressed in the Central Bank's structural model for inflation.

Amongst the developing countries that have adopted inflation targeting, Chile has also interpreted the framework explicitly as inflation-forecast-targeting. In a recent Monetary Policy Report the Central Bank of Chile (2001) explains how "...inflation projections must be considered an *intermediate target* in and of themselves: they reflect today what economic agents estimate could happen with inflation tomorrow, which in turn informs monetary policy...In this sense, the main *projection for inflation* during the eight-quarter period is similar to an *intermediate target for monetary policy*" (Central Bank of Chile, 2001: 12, my emphasis).

A recent survey by Schmidt-Hebbel and Tapia (2002) of the institutional design implemented at inflation targeting central banks posed the question: "Are inflation forecasts used as intermediate policy targets?" Of the twenty inflation targeting central banks in their sample, 12 answered in the affirmative. The SARB was amongst the 8 who did not (Schmidt-Hebbel and Tapia, 2002: Table 4). As mentioned above, though, a serious question mark hangs over the reliability of this particular survey and the weight given to this evidence in the argument is correspondingly diminished.

As is the case internationally, the domestic apology for the adoption of inflation targeting have explicitly been connected to the problems surrounding the use of money growth "guidelines" as intermediate targets in monetary policy[277]. It is a reasonable story, given the instability of the relationship between monetary aggregates and inflation in South Africa during the nineties, and due to the problems with intermediate targets as such.

As was mentioned in the previous chapter, intermediate targets are useful if a policymaker's goal cannot be controlled directly, but another variable could be found with a very stable causal relationship with the goal and which is under the policymaker's control. If it exists, such a variable could be used as an intermediate target. Using an intermediate policy target requires, therefore, that the transmission of policy be recursive in a very specific way, i.e. the policy instrument must affect the intermediate variable and then, through the intermediate variable, the goal. Policy changes must not affect the goal along any other route or the optimality of the intermediate target will be compromised (Svensson, 1999a: 213). Since the monetary policy transmission mechanism operates along a number of channels,[278] it follows that the requisite

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[277] Examples of the international discussion on this issue are Bernanke and Mishkin (1997: 101) and Svensson (1999a 212-213). Van den Heever (2001: 169) is an example of the same from the South African literature.

[278] See for example Mishkin (1995).

recursivity does not exist commonly for monetary policy and that intermediate targets for monetary policy are generally sub-optimal (Cecchetti, 1998b; Svensson, 1999b: 620).

The conditions for an ideal intermediate target are stated more fully in Svensson (1996: 3, 14-15), they are:

1. The intermediate target must be highly correlated with the goal.
2. Policy must have better control over the intermediate target than over the goal.
3. The intermediate target must be more easily observable by both the public and the policymaker.
4. For the public to co-operate rationally with the policy, the intermediate target must be transparent and comprehensible.

Svensson (for example Svensson, 1996; 1999a; 1999b) has often argued that inflation forecast targeting meets all the requirements of an ideal intermediate target. First, the conditional forecast is highly correlated with the observed inflation rate, by construction. Second, the control problem for the conditional forecast is greatly reduced, since the policy instrument has the same effect on the forecast as on the mean of inflation, but the variance of the forecast is smaller than that of inflation by the size of the forecast error[279].

Third, the forecast is immediately and continuously observable, whereas the corresponding realised inflation rate only becomes observable with a long and variable lag. By making the conditional forecasts public (or by private sector forecasters' mimicking the central bank's model) the target becomes generally observable, so facilitating public monitoring of monetary policy. Finally, inflation-forecasting can be made transparent if the following strategy is clearly explained to the public: the central bank will stick with its announced interest rate path if the conditional forecast is on the target, since the stance of monetary policy would then be appropriate. If the conditional forecast exceeds the target, in contrast, the nominal interest rate will have to be raised more than one-for-one relative to the expected rise in inflation (this would represent an appropriate real tightening of policy) and *vice versa* for a forecast below the target[280].

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[279] For David Romer (2001: 499) the risk of systematic errors in the attempt at hitting ultimate targets is one of the major arguments in favour of well-behaved intermediate targets.

[280] Svensson (1996: 15) is highly optimistic about the potential transparency of this strategy, insofar as he "...cannot imagine simpler principles, ...[or] anything easier to explain to the public, or anything more conducive to public understanding of monetary policy". Given that the SARB has, regrettably, invested some of its credibility in explaining a strategy based on an (inappropriate) ultimate target to the public, the SARB may not find it quite so easy to explain a new strategy to the public. This is not an argument for conservatism, but the recognition that institutional change is costly.

The answer to the second question posed at the outset is, therefore, that a conditional inflation forecast could serve as an optimal intermediate target.

Before considering the institutions required for successful inflation-forecast targeting, we need to consider the stage three refinement of the loss function, which complicates the implementation of inflation forecast-targeting somewhat. If the transmission mechanism has important non-linearities, or if there is uncertainty about policy multipliers, then the mean of the conditional forecast will no longer be an optimal intermediate instrument. Under these circumstances, the central bank has to construct a conditional forecast of the entire distribution of the target variable. In this way, inflation forecast targeting is generalised to "distribution forecast-targeting" (Svensson, 1999a: 311).

The fan charts introduced by, for example, the Bank of England are graphical depictions of their inflation forecasts and are practical versions of distribution forecast targeting, showing the "balance of risks" to the inflation forecast. Both the Bank of England and the Sveriges Riksbank depart from certainty equivalence when allowing the whole distribution of the target variable to influence decisions. The SARB has similarly constructed a fan chart – reported in the Bank's Monetary Policy Review - to plot the "balance of risks" to CPIX inflation.

### *5.2.4 Policy rules for inflation targeting*

Implementing inflation targeting requires a detailed description of the general and specific policy rules as per the discussion in chapter 4. Svensson (for example his 1999b; 2002a) and others (notably Cecchetti, 1998b; and Woodford, 2002a) have demonstrated the consistency between the general framework for monetary policy rules described in chapter 4 and the theory of inflation targeting described above.

The loss function in equation 5.1 above is uncontroversial and expresses the observation that all inflation targeting central banks place some weight in the general targeting rule on lowering output fluctuations around its natural level. In such a formulation inflation and the output-gap are the target variables, with corresponding targets of $\pi^*$ (for inflation) and zero (for the output gap). The general targeting rule (in the terminology of chapter 4) under inflation targeting can, therefore, be described as a commitment to minimise a loss function such as 5.1.

In chapter 4 the specific targeting was defined as a "... plan to set the instruments of policy in order to achieve the criterion of the loss function specified by the general targeting rule." In the context of inflation targeting this implies a commitment to setting the interest rate to achieve the conditions of the general targeting rule subject to the constraints posed by the transmission mechanism.

Svensson (2002a: 776) attributes the following specific targeting rule to both the Bank of England and the Sveriges Riksbank, i.e.: "set interest rates so that the inflation forecast about two years ahead is on target." This is similar to the MPC at the SARB's recent explanation (quoted above) of how they determine the stance of policy. As per the discussion in chapter 4, this specific targeting rule is normally sub optimal[281] (see especially Svensson, 2003), but is more robust to various specifications of the economic structure (Svensson, 2002a; 2002b). What is important here is that inflation forecast targeting, in principle, and as practised at the SARB, captures all the elements of the modern understanding of monetary policy rules

## 5.3 IMPLICATIONS OF A TARGETING RULE FOR STABILISATION POLICY

There is a concern, both domestically (Power, 2003) and internationally (Galbraith, J., 1999), that inflation targeting would focus the attention of monetary policy makers too narrowly on the pursuit of low and stable inflation, at the cost of economic growth and employment. Indeed, according to Goodfriend the "...most fundamental argument against making low *long run* inflation a priority is that it might unduly constrain interest rate policy from stabilising output relative to its potential in the *short run*" (Goodfriend, 2003: 13, emphasis in the original). This concern involves a slight misinterpretation of the policy rules implied by inflation forecast targeting. The following few paragraphs demonstrates how this framework for monetary policy is sensitive to fluctuations in growth or employment, and indeed, how inflation targeting is designed to yield not only low inflation, but also a stance for monetary policy that is appropriately anti-cyclical[282].

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[281] Sims (2003) argued that "we could extend the virtues of inflation targeting by accompanying inflation report projections of inflation, output, etc. with projected time paths of the policy rate." This means that the bank should not be implementing a constant interest rate specific targeting rule, but find some optimal time path for policy to which they could commit.

[282] From the first two chapters it will be clear that appropriate anti-cyclical policy does not include the use of monetary policy to lower either the long term rate of unemployment or to raise the long term rate of economic growth – though it was argued in chapter 1 that both of these desirable outcomes would be aided by monetary stability. An appropriately anti-cyclical monetary policy is here understood to have the following features: firstly, it should counteract the mushrooming of recessions by easing the stance of monetary policy; secondly, it should prevent the ballooning of upswings when they pose the threat of rising inflation.

Goodfriend (2003: 12) uses the example of implicit inflation forecast targeting at the Federal Reserve Board during the nineties to demonstrate how flexible inflation targeting also implies "constrained counter-cyclical stabilisation policy." Such counter-cyclical policy uses monetary policy to counteract the possible spiralling of downturns into full-blown recessions, as well as the prevention of inflationary pressure building in the course of a runaway upswing. It is perhaps ironic that monetary policy gains a degree of freedom to counter output fluctuations once inflation expectations reflect credible targets for long run inflation (Goodfriend, 2003: 13-14). The efficacy of this counter-cyclical policy was demonstrated with the most recent downturn in the USA, according to Goodfriend (2003):

> "Amazingly the Fed was able to cut the real federal funds rate by 4 or 5 percentage points to around zero without a hint of an inflation scare, since the Fed did not *need* a recession in 2001, it had the *flexibility* to cut the real funds rate aggressively to prevent one" (Goodfriend, 2003: 10, emphasis in the original).

Recent empirical investigations into the consequences for output variability of adopting an explicit inflation target - Nadal-Del Simone (2001) is an example - has not found any evidence either that inflation targeting has led to a conditional increase in output volatility. More positively, Arestis, Caporale and Cipollini (2002) have recently argued (with econometric support) that not only does inflation targeting not lead to worse output volatility, but that inflation targeting generates a more favourable trade-off between output volatility and inflation volatility.

The next subsection suggests a quantitative history of the extent to which monetary policy has been used to stabilise output volatility in South Africa since the early eighties. Such a history is relevant as it contextualises any claim that the new monetary policy regime would lead to a change in the stabilisation role of monetary policy domestically.

### *5.3.1 Quantitative history of South Africa monetary policy stabilisation in South Africa*

Macroeconomic policy in South Africa seems to have followed international developments, especially since 1994[283]. On the fiscal side the government's focus on reducing the burden of debt and the adoption of a medium term expenditure framework are both features of rule-like

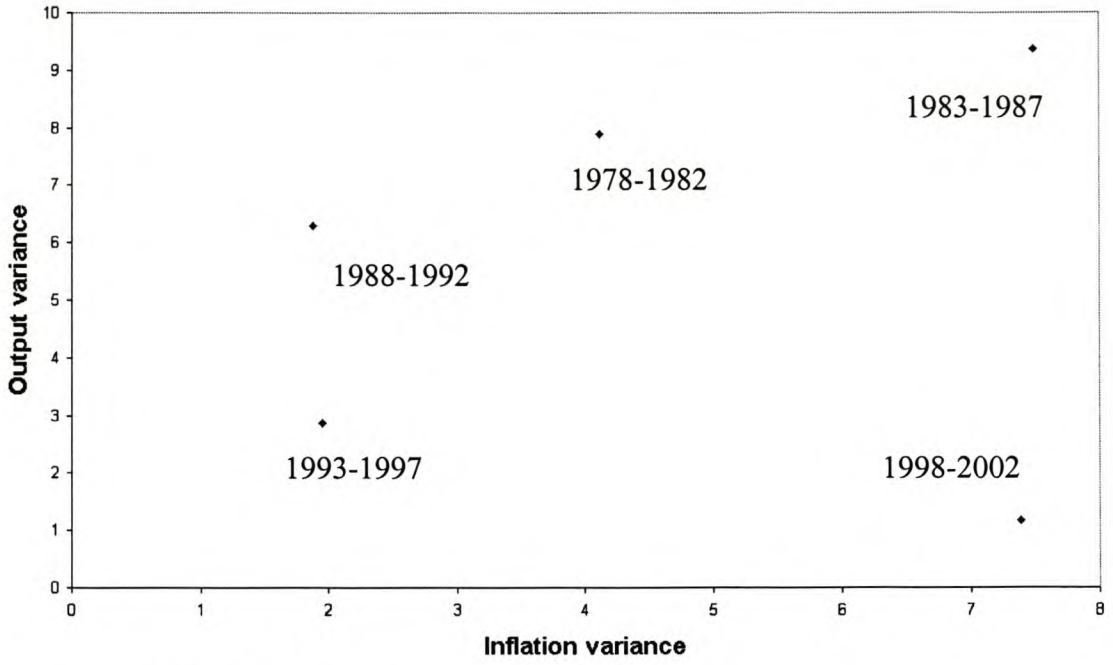
[283] This section draws on du Plessis and Smit (2003).

fiscal policy, even though it falls short of what would be called a "fiscal rule" more narrowly defined (see, for example Kopits and Symansky, 1998). And on the monetary policy side the SARB has implemented an inflation targeting regime, which is an explicit contingent plan, or rule-like policy framework.

These changes in the conduct of policy have met with some controversy (for example Power, 2002; Power, 2003) and two questions follow immediately: firstly, whether the adoption of a new framework for monetary policy represents a significant change in domestic stabilisation policy? And secondly, if so, whether it is better or worse at stabilising the economy when compared with the prior policy framework? To answer this question stabilisation policy is considered for the period since the early eighties, since monetary policy (through the use of interest rates) only evolved as an independent tool with the gradual implementation of the de Kock Commission's (1985) recommendations during the early eighties.

By way of introduction figure 5.2 plots the combinations of output and inflation variances for 5 year periods starting in 1978. An imaginary convex curve (with respect to the origin) passing through each point shows the relevant trade-off between output and inflation variability for that period. Trade-offs closer to the origin are preferable to those further out (if society's loss function contains output and inflation variability in a standard formulation).

*Figure 5.2* *Inflation and output variability in South Africa since the early eighties*




Source: Data from the SARB quarterly bulletin

The South African economy benefited from a more favourable trade-off between output and inflation volatility during the middle nineties, and though inflation volatility has since risen (mainly due to exchange rate volatility) output volatility has remained low. A preliminary observation based on figure 5.2 would be that there is little evidence that the gradual move to full fledged inflation targeting raised output volatility domestically.

The remainder of this sub-section is an attempt to quantify more systematically the impact that domestic monetary policy has had, historically, on output and inflation variability in South Africa. To select the policy events and macroeconomic outcomes to include in this history a method implemented by Christina and David Romer (1994) for the USA was adopted here (see also Romer, C.D., 1999). This method uses the turning points in the reference cycle - as defined by the South African Reserve Bank (SARB, hereafter) and shown in Table 5.1 below (for the period since the early eighties) – and gauges the stance of fiscal and monetary policy in the period following troughs and peaks in economic activity, so defined. This exercise was conducted separately for monetary and fiscal policy in du Plessis and Smit (2003), but only the monetary policy part of the analysis is shown here.

*Table 5.1* *Turning points and phases of the South African business cycle*

| Expansions | | Contractions | | Total duration |
|---|---|---|---|---|
| Period | Duration in months | Period | Duration in months | (in months) |
| 1978:1-1981:8 | 44 | 1981:9-1983:3 | 19 | 63 |
| 1983:4-1984:6 | 15 | 1984:7-1986:3 | 21 | 36 |
| 1986:4-1989:2 | 35 | 1989:3-1993:5 | 51 | 86 |
| 1993:6-1996:11 | 42 | 1996:12-1999:8 | 41 | 83 |

Source: South African Reserve Bank (2002)

The stance of monetary policy is indicated with two measures here, the nominal interest rate[284] and a real *ex ante* interest rate constructed econometrically using the methodology of Romer and Romer (2002). It is the real interest rate that should matter, theoretically, for aggregate demand fluctuations, but the nominal interest rate is included as much of the policy discussion is conducted in terms of the nominal interest rate. The Romers' procedure for calculating the real interest rate involves three steps, of which the first is to define an *ex post* real interest rate as per equation (5.4).

$$r_t^{exp} = i_t - 400 * \left[ \frac{\ln(P_{t+1} - P_t)}{2} - \frac{\ln(P_t - P_{t-1})}{2} \right] \qquad (5.4)$$

where:

$r_t^{exp}$: the ex post real interest rate

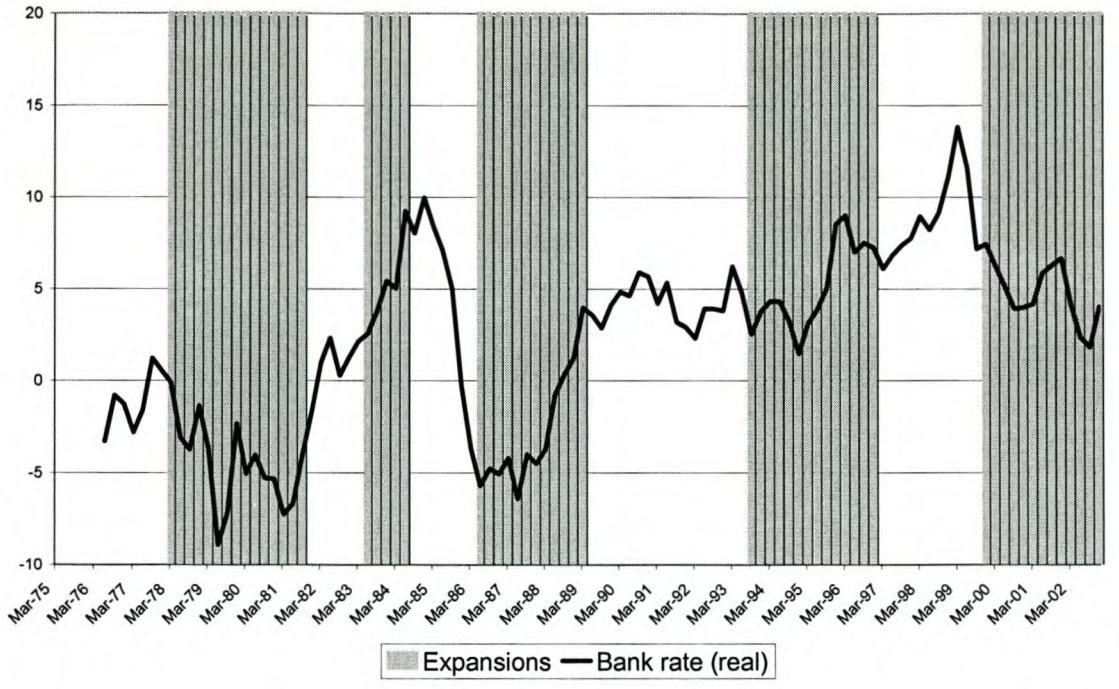
$i_t$: the nominal interest rate

$P_t$: The consumer price index

In a second step this *ex post* real interest rate is regressed on the nominal interest rate, inflation and real GDP growth in a distributed lag function with four lags. The fitted values for the dependent variable defines the *ex ante* real interest rate in step 3. Figure 5.3 shows the resulting real interest rate superimposed on a chart that shows the phases of the business cycle.

[284] The bank rate before 1998 and the repo rate thereafter.

*Figure 5.3* *Real interest rate over the phases of the South African business cycle*




A preliminary evaluation of the counter cyclical history of monetary policy is whether the real interest rate declined during contractions and rose during expansions, and can be investigated visually on figure 5.3. It is only the cycle starting with the trough in April 1983 during which the real interest rate moved unambiguously as expected if monetary policy was being used exclusively for output stabilization purposes. This observation is supported by the data in tables 5.2 and 5.3 below.

Table 5.2 shows the quarterly changes in the nominal interest rate in the 8 quarters following a peak in economic activity (or the next trough, whichever comes first). The exercise is repeated for the real interest rate in table 5.3. Anti-cyclical monetary policy would show a fall in the nominal and real interest rate following a peak.

*Table 5.2* *Nominal Interest rate changes during contractions*

| Date of Peak | 1981:8 | 1984:6 | 1989:2 | 1996:11 |
|---|---|---|---|---|
| Quarter | | | | |
| +1 | 0.64 | 2.8 | 1.46 | 0.50 |
| +2 | 0.83 | 0.74 | 0.42 | 0.00 |
| +3 | 0 | 0.37 | 0.55 | 0.00 |
| +4 | 0 | -1.65 | 0.45 | -0.67 |
| +5 | 0 | -3.07 | 0 | -1.33 |
| +6 | 0 | -3.14 | 0 | 1.26 |
| +7 | | -1.61 | 0 | 5.21 |
| +8 | | | -0.21 | -1.22 |
| *Cumulative* | *1.47*[285] | *-5.56* | *2.67* | *3.74* |

*Table 5.3* *Real Interest rate changes during contractions*

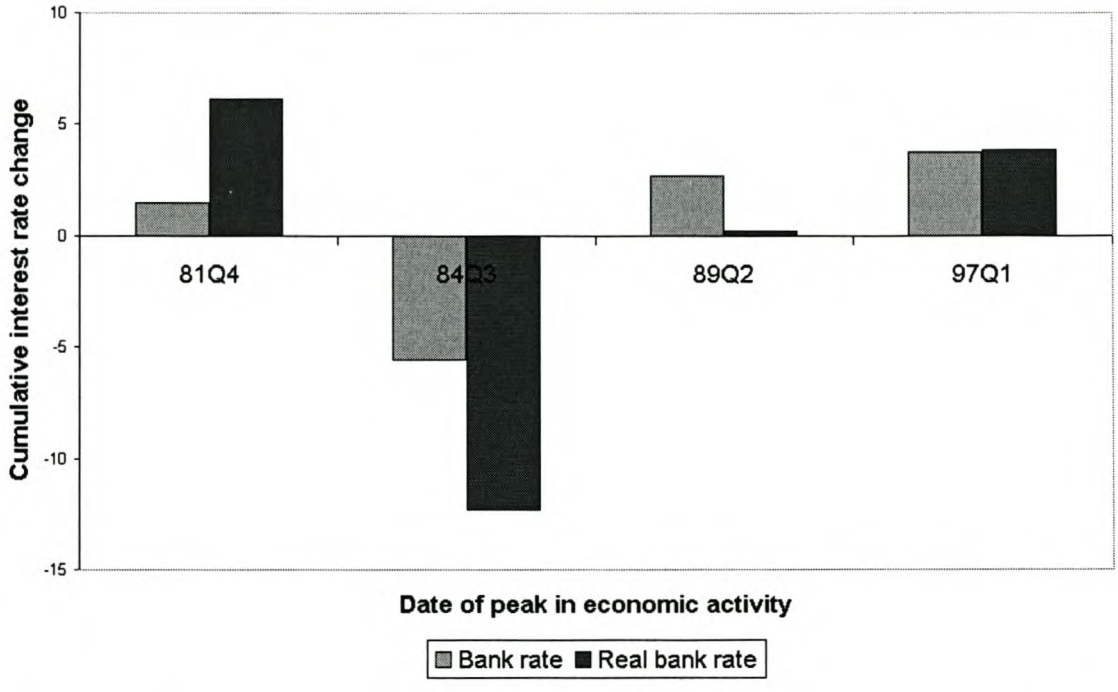
| Date of Peak | 1981:8 | 1984:6 | 1989:2 | 1996:11 |
|---|---|---|---|---|
| Quarter | | | | |
| +1 | 2.26 | -1.21 | -0.42 | -1.16 |
| +2 | 2.74 | 1.96 | -0.70 | 0.73 |
| +3 | 1.31 | -1.57 | 1.27 | 0.56 |
| +4 | -2.04 | -1.31 | 0.70 | 0.37 |
| +5 | 0.99 | -2.08 | -0.20 | 1.19 |
| +6 | 0.87 | -5.26 | 1.26 | -0.74 |
| +7 | | -3.45 | -0.21 | 0.93 |
| +8 | | | -1.47 | 1.96 |
| *Cumulative* | *6.13* | *-12.92* | *0.22* | *3.85* |

In sharp contrast with the US experience – as reported by Romer and Romer (1994) - neither the nominal nor the real short-term interest rate declined generally in the quarters following a peak in economic activity. Indeed, it was only during the contraction following the peak of June 1984 that monetary policy was eased (cumulatively) in either nominal or real terms. This last observation is demonstrated in figure 5.4 which shows the cumulative interest rate changes over

[285] The SARB fixed the Bank Rate at 13.5% from the first quarter of 1982 until the 4th quarter of 1983. During this period the Bank allowed the market to set the stance of monetary policy, through the Prime lending rate of commercial banks. As an alternative the four quarters of zero interest rate changes in table 2 could be supplemented with the changes that had occurred in the Prime lending rate during the same period, that is the following series {+1.33, 0, -1.33, -3}. The market relevant monetary policy stance was, therefore, more anti-cyclical than apparent from table 2.

the eight quarters following a business cycle peak. Further, these cumulative changes are large when compared with the standard deviation of nominal and real interest rate changes of 1.17 and 1.87 respectively for the period.

*Figure 5.4* *Cumulative interest rate changes following peaks in economic activity*




Whereas policymakers may be asymmetrically concerned with combating recession, they are also concerned with preventing expansions form running unchecked as that may provoke a sharper or more protracted downswing if either inflation became entrenched or capital was greatly misallocated, as per a bubble. Consequently, stabilisation policy has come to focus on the reduction of output volatility around the secular trend of output expansion (not attempts to boost output growth) (Lucas, 2003).

Tables 5.4 and 5.5 show the quarterly changes in the real and nominal interest rates, respectively, for the 8 quarters following troughs in economic activity.

*Table 5.4* *Nominal Interest rates during expansions*

| Date of Trough | 1977:12 | 1983:3 | 1986:3 | 1993:5 | 1999:8 |
|---|---|---|---|---|---|
| Quarter | | | | | |
| +1 | 0 | 0 | -0.8 | 0 | -1.41 |
| +2 | 0 | 0 | -0.84 | -0.67 | -0.33 |
| +3 | -0.22 | 0.85 | -0.61 | -0.33 | -0.02 |
| +4 | -0.28 | 3.4 | -0.44 | 0 | 0.00 |
| +5 | -0.37 | 0 | 0 | 0.17 | 0.21 |
| +6 | -0.63 | | 0 | 0.83 | 0.04 |
| +7 | -0.26 | | 0 | 0.42 | -0.23 |
| +8 | -0.24 | | 0.22 | 0.58 | -1.15 |
| *Cumulative* | *-2* | *4.25* | *-2.47* | *1* | *-2.9* |

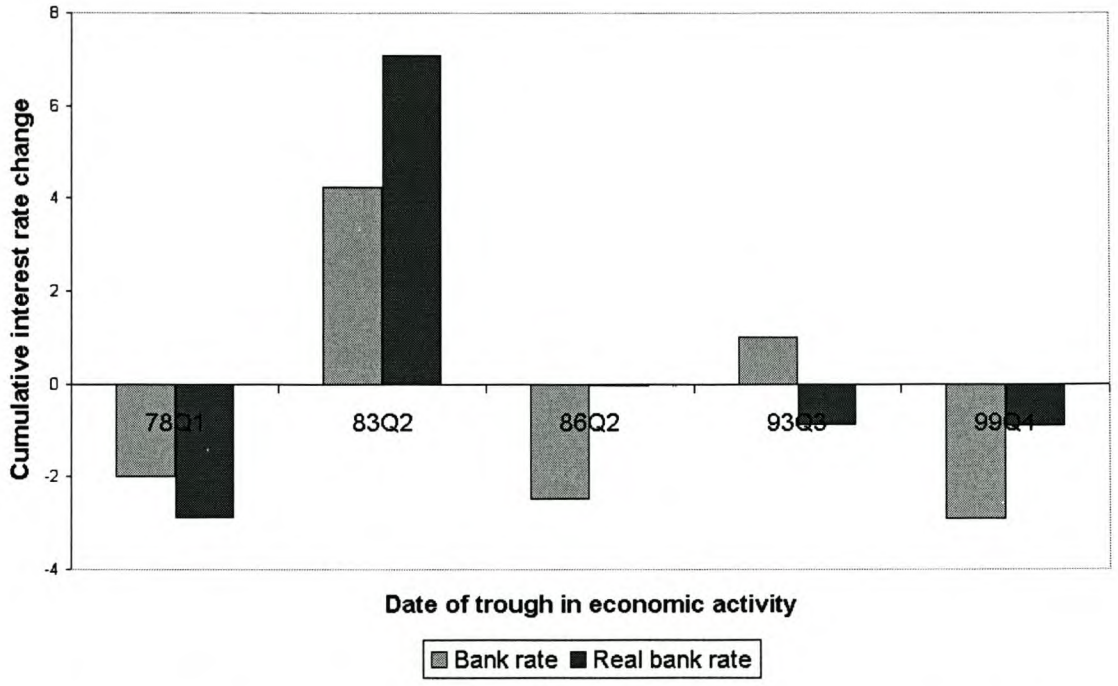
*Table 5.5* *Real Interest rates during expansions*

| Date of Trough | 1977:12 | 1983:3 | 1986:3 | 1993:5 | 1999:8 |
|---|---|---|---|---|---|
| Quarter | | | | | |
| +1 | -0.64 | 0.44 | -2.01 | -2.21 | 0.26 |
| +2 | -2.98 | 1.21 | 0.94 | 1.22 | -1.18 |
| +3 | -0.64 | 1.65 | -0.31 | 0.57 | -1.13 |
| +4 | 2.34 | -0.40 | 0.87 | -0.01 | -1.21 |
| +5 | -2.32 | 4.19 | -2.21 | -1.06 | 0.08 |
| +6 | -5.22 | | 2.40 | -1.78 | 0.19 |
| +7 | 1.73 | | -0.48 | 1.63 | 1.67 |
| +8 | 4.85 | | 0.76 | 0.76 | 0.44 |
| *Cumulative* | *-2.88* | *7.09* | *-0.04* | *-0.88* | *-0.89* |

Changes in the stance of monetary policy during expansions were similarly counter-intuitive from the perspective of stabilisation policy, with real interest rates declining in all but one of the cycles under consideration. Yet again, the magnitude of these declines is large in comparison with the standard deviation of interest rate changes over the period noted above. Figure 5.5 below plots the cumulative interest rate changes visually. As with the responses during contractions, the South African experience is in sharp contrast with the US experience - recorded by the Romers

(1994) – where the Federal Reserve Board raised nominal and real interest rates during expansions.

*Figure 5.5* *Cumulative interest changes following troughs in economic activity*




From welfare considerations the inability of the SARB to ease monetary policy during contractions may be especially serious. To quantify this effect the Bureau of Economic Research at Stellenbosch University's quarterly model of the South African economy was used to measure the effect that policy had had on output and inflation relative to a benchmark. The latter was defined as a constant nominal interest rate scenario for 8 quarters following the peak in economic activity[286]. The cumulative discrepancy between the actual and baseline cases is shown in figures 5.6 and 5.7 for output growth and inflation respectively. In both cases a positive number means that the actual series exceeded the outcome under the policy baseline.

Figures 5.6 and 5.7 show that actual monetary policy exaggerated 3 of the 4 downswings in economic activity since the early eighties relative to a counterfactual history with a constant nominal interest rate during the relevant periods. However, the counterfactual policy would have entailed higher inflation.

*Figure 5.6* *The discrepancy between actual and baseline GDP growth*

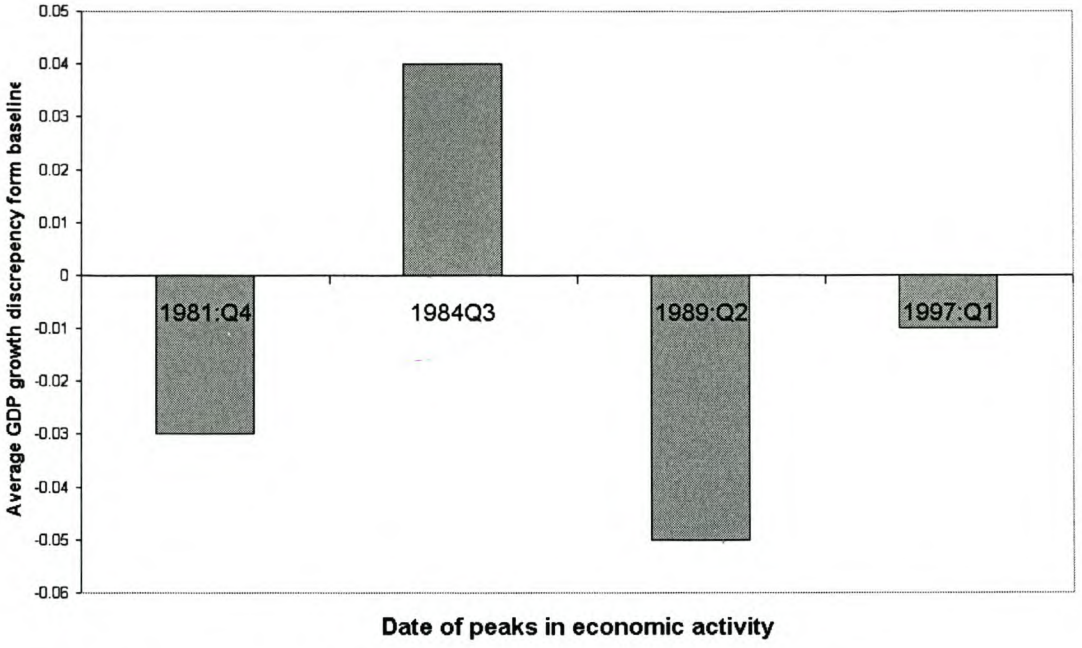
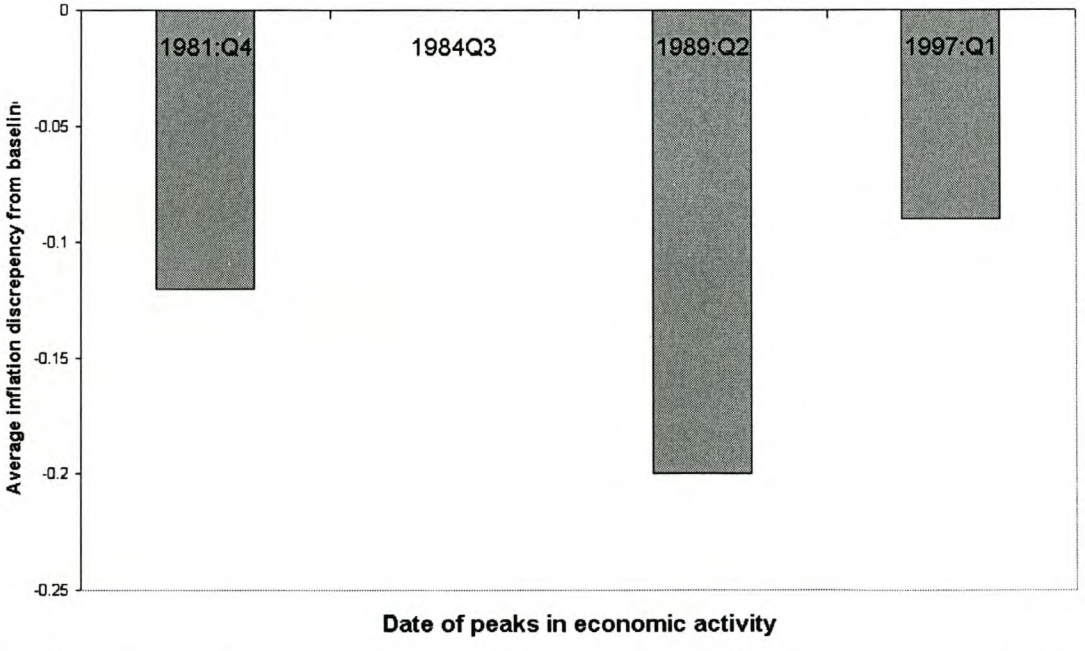



Figure 5.7 The discrepancy between actual and baseline inflation




Geoff Woglom (2003) recently investigated whether the implementation of inflation targeting in South Africa has changed the systematic nature of monetary policy to the extent that time series tests could uncover and describe the regime shift. Woglom (2003) was particularly interested in quantifying the implicit response of the SARB to the Rand's exchange rate in its specific targeting

[286] To allow for the long contraction starting in 1989 and to give a less erratic shape to the baseline interest rate series, 12 quarters (rather than 8) of constant nominal interest rates were used in that case.

rule. To this end, Woglom (2003) estimates open economy Taylor-type rules – attributed to Ball (2000) - to describe the stance of monetary policy in South Africa as a function of the past stance of policy, the observed inflation rate, the real appreciation of the currency[287], and the output gap.

The strategy is to estimate and compare the Taylor rule in the pre- and post-inflation targeting periods. However, this raises the important question of dating the inception of inflation targeting. There are at least two reasons for doubting that the SARB's implicit policy rule changed abruptly on the formal announcement of the new monetary policy regime in March 2000: firstly, the Bank and government had been discussing the possible regime change for some time prior to the minister of Finance's formal announcement. Secondly, the implementation of inflation targeting probably had an evolutionary aspect, the most significant changes of which need not have coincided with the formal announcement in March 2000.

Nevertheless, Woglom (2003) had to split the sample one way or the other, and he used the CUSUM[288] test to settle the matter empirically. According to his application of the CUSUM test there is clear evidence of a shift in the parameters of the Taylor rule during late 1998, that is in the aftermath of the Russian crisis and the Rand's rapid depreciation (which the SARB had tried, without success, to defend with higher interest rates). Accordingly, Woglom (2003: 5-6) identifies the pre- and post-inflation targeting periods as January 1990 until June 1999 and January 1999 until December 2002 respectively.

The results of comparing Woglom's (2003) pre- and post-inflation targeting Taylor rules are, in short: Firstly, that the short-run response to inflation had risen under inflation targeting, and that the long run response had consequently fallen (due to the Koyck lag, used). Secondly, monetary policy appears to have become more sensitive to the output gap since 1999. Thirdly, the exchange rate plays a greatly diminished role in the inflation targeting policy rule[289]. Woglom

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[287] The SARB appears to have stabilised the real exchange rate actively from 1989 onwards under Governor Stals, though that policy was never stated explicitly. Capital market volatility prior to and following the 1994 elections complicated any attempts to guide the exchange rate, and in 1996 the Rand depreciated sharply in what Aron and Muellbauer (2000: 10) called a "classic exchange rate crisis." Following this crisis the SARB continued the attempted manipulation of the currency, but following the expensive and ultimately futile intervention in support of the Rand in 1998, the SARB has allowed the Rand to float more freely.

[288] The CUSUM test of Brown, Durbin and Evans (1975; see also, Green, 1993: 216-218) is designed to locate structural shifts in estimated behavioural equations.

[289] Woglom's (2003) fourth conclusion, that the stance of policy can systematically be related to policy with greater success in the inflation targeting period is based on a hopeful interpretation of the normal F-tests in the two samples. Since the F-statistic is non-comparable across samples, and since the F-statistic is closer to the critical value in the second sample, there seems little reason for accepting Woglom's (2003) interpretation thereof.

(2003: 7) summarises these results cautiously as being "consistent with predictions of the proponents of the benefits of IT for monetary policy" since the implicit policy rule seems to provide a consistent response to the output gap and inflation (as per flexible inflation targeting) while de-emphasising foreign exchange market intervention in the post-inflation targeting period.

Contra to the popular objections (see for example Power, 2002; 2003) empirical estimations of the SARB's specific targeting rule suggests that inflation forecast targeting has increased, not decreased, the scope for monetary policy to contribute to output stability domestically. This conclusion is also consistent with the shift in volatility recorded in figure 5.2 and the policy responses in tables 5.1 through 5.5.

## 5.4 TECHNICAL DETAILS OF AN INFLATION TARGETING RULE

Having established that inflation forecast targeting is akin to a contingent plan for monetary policy and that this plan need not shun the stabilisation role of monetary policy, it is still necessary to consider some of the technical details of the contingent plan used by, for example, the SARB as a specific targeting rule.

### *5.4.1 The relevant target index.*

There is a lively debate about the relevant price index to target in this type of policy framework going right back to Simons (1936). This debate has also featured in the discussion of inflation targeting domestically. The SARB's specific targeting rule uses the Consumer Price Index (measured in metropolitan areas) excluding mortgage interest payments, called the CPIX index. Excluding mortgage interest payments is a logical step to avoid a perverse rise in the forecasted inflation rate when interest rates are tightened[290].

Alternatively a "core" inflation index could be used, as has for example, been suggested for South Africa by economists such as Azar Jammine (quoted in Bell, 2002) and Colin Garrow (quoted in Steyn, 2002). However, by excluding the volatile components of the consumer price index the central bank could easily end up targeting a price index different from that in society's

[290] Though logical, the use of a price index less interest rate components is by no means universal in inflation targeting countries as can be seen in Table 5.6 below.

loss function. This would only be optimal in the rare case where the arbitrary, but stable, index deviates non-systematically from the broader index.

A second argument against using a stripped down price index is the public's familiarity with headline inflation indices, as opposed to core inflation indices. Adopting the latter could, consequently, undermine the transparency of inflation targeting (Schmidt-Hebbel and Tapia, 2002). This was also Simons's (1936) original argument in favour of using a price index which is familiar in the public domain.

Frank Shupp (2003) recently argued for the use of a core index under inflation targeting in a model of backward-looking price-setting in a predominantly fix-price economy[291]. The crucial issue is the forward looking nature of pricing decisions, not the core index or the market structure, though. Firms operating in fix-price markets could still incorporate a credible CPIX inflation target as long as their behaviour is forward-looking (Goodfriend, 2003: 18).

A slightly separate issue is whether the inflation target should be defined in terms of a price level or in terms of a change in the price level. Indeed Simons's (1936) seminal exploration of rules and discretion in monetary policy considered a price level target as the operative alternative for discretionary policy. The advantage of credible price level targeting is that the long run forecast of the price index is bounded, whereas the long run forecast of even a zero inflation rate target is unbounded (Fischer, 1995b).

However, monetary authorities have shunned price level targets as the output cost of deflating the economy in response to a positive aggregate price shock[292] is expected to contribute, unduly, to output volatility (Fischer, 1995b). A second reason for preferring an inflation target to a price level target is that the former is explicitly forward-looking, while the latter is primarily backward-looking. As a result, the price level target risks re-introducing time inconsistency, the very problem which was at the heart of the case for a monetary policy rule in the first place (Carlstrom and Fuerst, 2002).

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[291] Though his claim was general, he advanced it with specific reference to the South African case.

[292] A positive shock relative to the pre-announced path for the price level. Cechetti and Kim (2003) introduce the term "price path" targeting to emphasise that the price level target could have a positive slope with the implication that returning to the path need not imply deflating the economy. The standard terminology is used here, with the understanding that a positive aggregate price shock is relative to the pre-announced path for the index, in which case deflation would still have to follow inflation.

Recently, Cechetti and Kim (2003) re-opened this debate by revisiting an earlier result of Svensson's (1999c) to the effect that price level targeting is more efficient than inflation targeting in an economy with sufficiently high output persistence, even if society's loss function cares about inflation and not the price level. Cechetti and Kim (2003) refined this result by finding an optimal "hybrid target" (a weighted average of inflation and price level targeting) for a given degree of output persistency.

The important practical question is, however, whether the optimal hybrid is closer to price level or to inflation targeting, especially given the expected cost in terms of transparency which a move to a hybrid target might entail. This was also the important practical question for Cechetti and Kim (2003), and they investigated it by finding the optimal hybrids for a set of 23 countries[293]. In the event their results confirmed the earlier intuition that the benefits of price level targeting are outweighed by its expected cost (either in terms of output volatility or transparency). More precisely, Cechetti and Kim (2003: 4) found that "...adopting such an optimal [hybrid] regime has only very modest benefits (as measured by the percentage reduction in the social loss) when compared with strict inflation targeting." It follows that inflation targeting central banks are best served by targeting the rate of change in the price level, opening the important practical question about the nature of that inflation rate target. Additionally, the cause of transparency is served by targeting a price index familiar to the public, such as the headline CPI. The use of CPIX inflation by the SARB matches these requirements.

### *5.4.2 The choice of a target range*

An explicit inflation target could be specified either as a range within which forecasted inflation must fall, or as a point target for forecasted inflation. The latter is usually accompanied by a tolerance range in recognition of both the uncertainty of the transmission mechanism and the unforeseen events which affect the realisation of inflation, but could not have been discounted in the monetary policy decisions. The unexpected component of the Rand's rapid depreciation in late 2001 and its subsequent impact on domestic inflation is an example of such uncertainty.

Both range and point targets facilitate the two-dimensional evaluation of monetary policy under inflation targeting described above. Firstly, the point or range target can be compared with a conditional forecast for inflation (and a forecasted path for the policy instrument) at the

[293] The data for Cechetti and Kim's (2003) econometrics is a set of 23 industrialised countries.

appropriate horizon, to evaluate the stance of monetary policy at every point in time. Secondly, the track record of observed inflation can be compared with either the target range or the tolerance range as a continuous evaluation of the policy framework.

However the implementation of a target range as alternative to a point-target with tolerance range is subject to a specific problem which occurs, when – as is typical - the edge of the band dominates the public discussion and the policymaker's deliberations[294]. This happens when the authorities, and the public more broadly, focus on whether the target variable is just in or just outside the edge of the range (Mishkin, 2000b).

The SARB's interpretation of its specific targeting rule (cited above) is a typical example of a hardening edge. Though the MPC acknowledged that – given an unchanged stance for monetary policy - forecasted inflation was consistent with the middle of the target range at the appropriate policy horizon, the MPC nevertheless lowered the policy interest rate by 150 basis points (Mboweni, 2003a). Such a decision is inconsistent with a policy rule centred around 4.5% with a tolerance range of 1.5% on either side. Instead it is consistent with a hard edge at 6% for the target range.

When the edge of the target becomes "hard" in this way, the reaction function of the policymakers becomes oddly asymmetrical, with small deviations either side of the hard edge implying very different policy reactions[295]. Such an asymmetry is harmful in two ways: firstly, such an asymmetrical response at a hard edge is almost certainly inconsistent with any sensible loss function for monetary policy (Mishkin, 2000b).

Secondly, the public will judge the policy a success or failure following essentiality arbitrary outcomes either side of the hard edge. An unintended consequence of a target range could, therefore, be that the central bank conveys the impression of great certainty, not uncertainty, in the monetary policy transmission mechanism. A point target avoids these problems by focussing the attention of both policymakers and the public on the point and away from the edges.

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[294] This section draws on du Plessis (2003).

[295] The extent to which the choice of a target range in South Africa has led to a hard edge is discussed more fully in chapter 7.

### 5.4.3 *The role of an escape clause*

The choice of a target range for inflation targeting is often accompanied by an "escape clause" to be invoked when exceptional circumstances would require unduly disruptive policy adjustments to meet the target. Such an escape clause is meant to give flexibility to the central bank, allowing policymakers to adjust interest rates more modestly (with less dramatic effect on output volatility) than would have been necessary in the absence of the clause.

Using the clause in a forward-looking manner, as described here, implies an effective lengthening of the horizon over which intermediate target (forecasted inflation) is compared with the target range. Using an escape clause in this way can be supported by reference to Svensson's (1999b) proof that returning forecasted inflation to a desired level over a longer horizon dampens the adverse effect on output volatility. Using the escape clause in this way responds to the need for managing inflation expectations, without adding to economic volatility: if the targeting regime is credible, and the use of an escape clause an exception, then invoking the clause provides breathing space to the monetary authorities, without undermining the credibility of the targeting regime by fuelling inflationary expectations.

The escape clause becomes, in essence, a communications device whereby the central bank can explain its policy stance in a forward-looking manner to the public, without undermining its anti-inflation credibility. Bernanke et al. (1999) have interpreted the auspicious implementation of money growth targets during the seventies and eighties by the Bundesbank and the Swiss National Bank as analogous to this forward looking use of an escape clause[296]. Both central banks used the forecasts for monetary growth as a way of explaining the stance of policy, focussing on its long-run inflation impact, while cognisant of real economic developments in the shorter run (Posen, 1997). Here is how the Bundesbank explained its use of money growth targets as a device for maintaining credibility while gaining flexibility, in the face of the likely impact of the second oil shock on monetary conditions in West Germany:

> "However, the fact that the Bundesbank deliberately accepted the risk of a major divergence from its quantitative money target does not imply that it abandoned the more medium-term orientation which has marked its policies since 1975... There may be periods in which the pursuit of an 'intermediate target variable,' as reflected in the announced growth rate of the central bank money stock, cannot be given priority." (Bundesbank, quoted in Bernanke, et al., 1999: 60)

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[296] This interpretation of Bernanke, Laubach, Mishkin and Posen (1999) seems to build explicitly on Posen's (1997) earlier arguments in the same direction.

Adam Posen summarised the consequent flexibility of the Bundesbank's targeting regime elsewhere as:

> "The Bundesbank consciously used these targets as a framework for signalling its intent and explaining its policies to its constituent public. In consequence, these targets actually granted the German central bank *greater* flexibility in responding to the problems of monetary control... the use of monetary targets in Germany has conferred greater transparency on the Bundesbank's monetary policy stances, enhancing flexibility without obvious cost to its independence" (Posen, 1997: 2, emphasis in the original).

However, neither the Swiss National Bank, nor the Bundesbank employed a formal escape clause. Indeed, it seems as if a sufficiently open communications strategy can substitute for a formal escape clause. The SARB also substituted an open communications strategy for the formal escape clause following the inflationary consequences of the Rand's rapid depreciation in 2001. Despite much public speculation (for example: Mnyanda, 2002; van Niekerk and Ensor, 2002) the SARB declined using its escape clause until the MPC's comprehensive account of the depreciation and its consequences for subsequent inflation (SARB, 2003) obviated the use of the clause.

Indeed the SARB's preference for using communication rather than to invoke a formal escape clause has raised questions over the continued usefulness of the clause in the local inflation targeting regime. Even Governor Mboweni has recently questioned the relevance of such a clause as long as inflation targeting is sufficiently transparent. He was also concerned with the adverse on inflation expectations of invoking the clause (Joffe, 2003). This indicates that the Governor holds to the *ex ante* conception of escape clauses.

However, there is an important difference between the South African experience and Bernanke et al.'s (1999) description of the German and Swiss use of communications strategies. The latter two central banks used communications to explain policy in a forward-looking manner, which corresponds to a forward-looking escape clause as described above. When used in the manner *ex ante* transparency does not undermine credibility. On the contrary, when used judiciously *ex ante* transparency could enhance credibility[297] (Posen, 1997: 16).

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[297] In the best case – as seen in Germany and Switzerland - "...there appears to be a positive synergy between having to occasionally break the commitment to the targets and low inflation in the short-run – and then explaining – and public support for and understanding of that commitment over the long run" argued Posen (1997: 16).

In contrast, the SARB's explanation arrived *ex post* and corresponds to a backward looking use of an escape clause. Indeed, a backward looking escape clause is an alternative policy tool, and has a slightly different aim from a forward looking clause: whereas the forward looking clause hopes to gain flexibility for the *stance* of policy without undermining the credibility of the Bank's commitment to the targeting regime, the backward looking clause tries to prevent damage to the credibility of the regime that might result from accumulated misses.

Targeting regimes with a high probability of accumulating losses have a greater need for *ex post* escape clauses. Table 5.6 lists countries that have adopted inflation targets recently and gives some information on the institutional design of their targeting regimes. A prime example of such a regime at high risk of generating failures is a target range with a hard edge as described above. The target range in South Africa could generate such a hard edge (some evidence that it has hardened is given below) which explains the perceived need for an escape clause. However, the SARB is, presently, hostile to using the escape clause (as mentioned above). This is an example where the institutions of monetary policy lack overall coherence, an issue returned to in chapter 7.

*Table 5.6 Institutional design of inflation targeting regimes internationally*

| Country[a] | Inception date | Index targeted | Target | Horizon | Escape clause | Penalty for target miss | Target set by | Openness and accountability[b] |
|---|---|---|---|---|---|---|---|---|
| Australia | Sept 1994 | Headline CPI | 2-3% | The business cycle | None | None | Government and CB | Quarterly inflation report.<br>Numeric 6-8quarter point forecasts of inflation.<br>6 full time staff compose the report.<br>Monetary policy minutes not published. |
| Brazil | June 1999 | Headline CPI | 4% (2003) and 3.75% (2004) with 2.5% tolerance range | Set for calendar years | None | CB must write an open letter to the minister of finance to explain (a) the breach (b) how it is being addressed and (c) over what horizon | Government (consulting with the CB) | Quarterly Inflation report.<br>Graphic and numeric 2-year forecast for inflation.<br>Graphic 2-year GDP growth forecast.<br>22 full time staff compose the report.<br>Publish extracts from Board meetings after 8 days.<br>Publish models used |
| Canada | Feb 1991 | Headline CPI | Mid-point of a 1-3% target range | 6-8 quarters | Target path can be revised under exceptional circumstances | Public explanation | Government and CB | Semi-annual monetary policy report.<br>Numeric 6-8 quarter point forecasts of inflation.<br>Numeric 7-quarter GDP growth forecast.<br>1.5 full time staff compose the report.<br>Quarterly projection model published. |
| Chile | Jan 1991 | Headline CPI | Mid-point of a 2-4% target range | 2 years | None | None | CB (consulting with the government) | 4-monthly inflation report.<br>Graphic and numeric 2-year inflation forecasts.<br>Graphic and numeric 2-year GDP growth forecasts.<br>5 full time staff compose the report.<br>Monetary policy minutes published after 12 weeks. |
| Colombia | Sept 1999 | Headline CPI | 6% for 2002 | 1 year | None | None | Government and CB | Quarterly inflation report<br>Numeric 2-year point forecast for inflation.<br>Qualitative 2-year GDP growth forecast.<br>4 full time staff compose the report.<br>Monetary policy minutes not published. |
| Czech Republic | Jan 1998 | Headline CPI | 1-3% | 1 year | Yes, for shocks unrelated to monetary policy or (domestic) economic fundamentals | None | CB | Quarterly inflation report.<br>Numeric 1-year range forecast for inflation.<br>21 full time staff compose the report.<br>Monetary policy minutes published after 11 days. |

| Country | Inception date | Index targeted | Target | Horizon | Escape clause | Penalty for target miss | Target set by | Openness and accountability |
|---|---|---|---|---|---|---|---|---|
| Hungary | July 2001 | Headline CPI | 3.5% with 1.5% tolerance range | Set for calendar years, but uses 4-8 quarters operationally | None | None | Government and CB | Quarterly inflation report.<br>Graphic 6-8 quarter inflation forecast.<br>Numeric 6-8 quarter GDP growth forecast.<br>6↓ full time staff compose the report.<br>Monetary policy minutes not published. |
| Iceland | March 2001 | Headline CPI | 2.5% with 1.5% tolerance range | 2 years | None | Explanation required to government of (a) the breach, (b) what is being done and (c) over what horizon | Government | Quarterly inflation report.<br>Numeric and graphic 2-year forecasts for inflation.<br>1.25 full time staff compose the report.<br>Monetary policy minutes not published. |
| Israel | Jan 1992 | Headline CPI | 1-3% | 1 year | None | Public explanation if forecast more than 1% out of range | Government (consulting with the CB) | Semi-annual inflation report.<br>Monetary policy minutes not published |
| Korea | Jan 1998 | Core CPI | 2.5% on annual average with 1% tolerance range | More than 1 year | None | None | CB (in consultation with the government) | Semi-annual inflation report.<br>Graphic 2-year inflation forecast.<br>13 full time staff compose the report.<br>Submission to parliament.<br>Monthly announcement of direction for monetary policy.<br>Monetary policy minutes published after 3 months. |
| Mexico | Jan 1999 | Headline CPI | 3% with 1% tolerance range by end 2003 | Set for calendar years, but forward looking | None | None | CB | Quarterly inflation report<br>10 full time staff compose the report.<br>Monetary policy minutes not published. |
| New Zealand | Mar 1990 | CPIX | 0-3% | 6- 8 quarters | Yes, exceptional events that do not cause inflationary pressure | Minister of finance could ask for RBNZ governor to resign.<br>Public explanation of (a) the breach (b) what is being done to correct it (c) over what horizon | Government and CB | Quarterly inflation report.<br>Numeric 4-16 quarter inflation forecasts.<br>5 full time staff compose the report.<br>Monetary policy minutes not published |
| Norway | March 2001 | Headline CPI | 2.5% with 1% tolerance range | 2 years | None | Public explanation of (a) the breach (b) measures taken to correct it (c) over what horizon. | Government | 4-monthy inflation report.<br>Graphic and numeric 8-12 quarter inflation forecasts.<br>Graphic and numeric 2-year GDP growth forecasts.<br>7.2 full time staff compose the report.<br>Monetary policy minutes not published. |

| Country | Inception date | Index targeted | Target | Horizon | Escape clause | Penalty for target miss | Target set by | Openness and accountability |
|---|---|---|---|---|---|---|---|---|
| Poland | Oct 1998 | Headline CPI | 3% with tolerance range of 1% for year-end inflation in 2003 | 1 year | None | None | CB | Quarterly inflation report.<br>21 full time staff compose the report.<br>Inflation guidelines<br>Report on monetary policy implementation.<br>Monetary policy minutes published after 6 weeks. |
| South Africa | Feb 2000 | CPIX | 3-6% for average inflation | Tied to calendar years | Yes, major unforeseen events | None | Government (consulting with the CB) | Semi-annual inflation report<br>Graphic 2-year forecasts for inflation.<br>3 full time staff compose the report.<br>Monetary policy minutes not published.<br>Governor accounts for monetary policy in parliament |
| Sweden | Jan 1993 | Headline CPI | 2% with 1% tolerance range | 1-2 years | None | None | Government | Quarterly inflation report.<br>Graphic and numeric 2-year inflation forecasts.<br>Graphic and numeric 2-year GDP growth forecasts.<br>21 full time staff compose the report.<br>Submits inflation report to parliament.<br>Monetary policy minutes published after 2 weeks. |
| Thailand | April 2000 | Core CPI | 0-3.5% | 2 years | None | Public explanation of (a) the breach (b) measures taken to correct it (c) over what horizon. | Government (consulting with the CB) | Quarterly inflation report.<br>Graphic 2-year forecast for inflation.<br>Graphic 2-year GDP growth forecast.<br>15 full time staff compose the report.<br>Monetary policy minutes not published. |
| U.K. | Oct 1992 | RPIX | 2.5% with 1% tolerance range | 2 years | None | Open letter to chancellor of the Exchequer explaining (a) the breach and (b) measures taken to correct it and (c) over what horizon. | Government | Quarterly inflation report.<br>Graphic and numeric 2-year inflation forecasts.<br>Graphic and numeric 2-year GDP growth forecasts.<br>13 full time staff compose the report.<br>Monetary policy minutes published after 2 weeks.<br>Publish voting record of MPC.<br>Publish models used for forecasting. |

Sources: Mishkin and Schmidt-Hebbel (2001), Schmidt-Hebbel and Tapia (2002) Carare and Stone (2003) and the web sites of the relevant central banks.

a: Countries included are those listed as full fledged inflation targeters in Carare and Stone (2003)

b: Full time staff refers only to economists or members of the monetary policy committee.

Only 4 of the 18 full fledged inflation targeting regimes have formal escape clauses, while an open explanation of (a) the reasons for the breach, (b) actions taken to correct the breach and (c) the horizon over which the breach is likely to be corrected substitutes for an escape clause in 8 of the targeting regimes (2 of which also have formal escape clauses). Even in those central banks – for example the SARB – where such an explanation is not formally required as a penalty, the monetary authorities have indicated a preference for dealing with breaches with a transparent explanation, rather than by invoking an escape clause.

All four inflation targeting central banks with formal escape clauses have range, as opposed to point, targets. Excepting the Bank of Canada (which targets the mid-point of its range), this group, therefore, consists of inflation targeting regimes exposed to the risk of hard edges, as argued above. Indeed, table 5.6 provides tentative evidence that escape clauses are a counterpart of regimes exposed to the risk of hard edges, and that the rationale for escape clauses is undermined when the target is either a point or the middle of a range. Thailand and Israel are also exposed to the risk of a hard edge, but both have public explanations as a formal penalty system instead of escape clauses; Australia has neither, but targets inflation over the business cycle, which builds much flexibility relative to short run disturbances into the system.

In addition to information about the nature of the targeting regime, table 5.6 also shows the level and range of targets implemented by full fledge inflation targeting central banks. Of the 18 regimes listed in the table, 12 target either the mid-point of a range target or a point target with a tolerance range. Of the remaining 6, Columbia uses only a point target and the other 5 have range targets without specifying a central target within the range. As a stylised fact, inflation targeting regimes are biased towards either a point target with a tolerance range, or to targeting the mid-point of the target range.

The average width of the target or tolerance ranges in table 5.6 is 2.44 percentage points and the median range width is 2 percentage points[298]. Though developing countries are clustered towards the wide end of the range spectrum (Brazil, Thailand and South Africa have the widest ranges), other developing countries like Chile and Mexico share the narrow bands defined by developed countries. The average level of the point or mid range targets is 3.04% with a median of 2.75%.

[298] Columbia was dropped from the sample for this calculation as no range is specified for its target.

If the 5 countries with no central target are included[299] the average targeting level is somewhat lower at 2.82%, with a median of 2.5%. Three developing countries - Columbia, South Africa and Brazil – have the highest target levels, whereas another developing country, Thailand, is amongst the inflation targeters with the lowest targets. Additionally, 3 countries which have only recently attained the status of developed countries (Israel, Korea and the Czech Republic) have targets above the mean for the group.

Three observations can be made from these summary statistics: firstly, inflation targets in developing countries have, on average, slightly higher point or mid-range targets and a slightly wider dispersion than is the case for developed countries. Secondly, some developing countries have targets as low and ranges as narrow as those of developed countries. Thirdly, only Columbia at 6%, and perhaps South Africa (where the upper edge of the range is 6%) have targets above 5% inflation per annum.

To compliment these empirical observations there is a theoretical literature that considers the link between the structure of an economy and the appropriate range for an inflation target. For example, Erceg (2002) suggests a framework for thinking about this issue which is consistent with the way policy rules were introduced in the previous chapter and used above. In Erceg's (2002) model the authorities chose a point on what he calls the monetary policy frontier, that is the locus of optimal trade-off between variability in inflation and that of other items in the general policy rule (for example the output gap, in a generalised Taylor graph). Erceg (2002) demonstrates theoretically that under fairly general conditions (for a small open economy) and for a given inflation target range, output gap volatility is a positive function of: volatility in the terms of trade and in shocks to domestic production, of openness to trade and of the degree of nominal wage rigidity. The theoretical connection in Erceg's (2002) model is consistent with consideration of this topic from the applied literature (for example, Eichengreen, 2002).

These observations suggest that: firstly, policy makers in developing countries are conscious of the danger to credibility if they should aim at and then miss unrealistically low targets or narrow ranges. Having said that, even in these developing countries, the target levels and range widths are not much higher or wider than in industrialised countries. Indeed, there seems little support for the claim that developing countries should have higher inflation targets because of inherent

[299] By taking the mid-point of the ranges as the appropriate long term point target.

characteristics of developing economies. Rather, the wider ranges and slightly higher targets seem to reflect the sober realisation that the transmission mechanism is less stable and the economy subject to relatively greater shocks than is the case for developed countries. This is corroborated by noticing the wider target range chosen by those small open developed countries such as Iceland and New Zealand that are also subject to relatively greater shocks.

## 5.5 CONCLUSION

In this chapter inflation forecast targeting was interpreted as an example of a modern monetary policy rule; and it is an increasingly popular rule for monetary policy in both developed and developing countries, despite the many difference in structure between these two groups. However, these differences might matter a great deal and the institutional design of an inflation targeting regime is crucially important (Svensson, 2002a) if it is to provide a successful nominal anchor in any given situation. Chapter 7 provides an in depth consideration of relevant institutional details as well as an institutional evaluation of the SARB's present targeting regime. However, before proceeding to the institutional detail it may be useful to consider, at a general level, the success of inflation targeting regimes internationally over the last decade. Chapter 6 provides a brief survey and analysis of the relevant empirical literature.

# CHAPTER 6 EVALUATING INFLATION TARGETING INTERNATIONALLY

In his memoirs Francis Galton writes of a colourful incident involving Herbert Spencer and Aldus Huxley:

> "Spencer, during pause in conversation a dinner at the Athenaeum, said, 'You would little think it, but I once wrote a tragedy.' Huxley answered promptly, 'I know the catastrophe.' Spencer declared it was impossible, for he had never spoken about it before then. Huxley insisted. Spencer asked what it was. Huxley replied, 'A beautiful theory, killed by a nasty, ugly little fact,'" (Galton, 1908)

At the end of the first decade of inflation targeting, with developed and developing countries adding to the increasing number of inflation targeting central banks, economists have (as one would have expected) begun the econometric task of comparing the facts of experience with the promise of theory. Consequently, a literature on evaluating the inflation targeting experience is rapidly emerging, with some of the important contributions made by: Bernanke, Laubach, Mishkin and Posen (1999); Landerretche, Corbo and Schmidt-Hebbel (2002); Neumann and von Hagen (2002) and, most recently, by Ball and Sheridan (2003) and Hu (2003). This chapter is a brief summary of the literature that evaluates inflation targeting empirically.

Evaluating a monetary policy regime is, however, a thankless task, and as so often with public policy, it is easier to identify patently poor policy than to rank the better policies. For a start, the question is not whether inflation targeting has been a success in some ultimate sense, but whether it has served its patrons better than the alternatives. For each country the appropriate evaluation is a comparison with the outcomes of inflation targeting with the counterfactual outcomes under an alternative monetary policy regime. That counterfactual is, however, never observed.

Two additional problems contribute to the difficulty of ranking monetary policy regimes: Firstly, outcomes cannot be associated in a one-to-one fashion with policy decisions, given a complex and dynamic transmission mechanism, and secondly "other" (i.e. non-policy) disturbances impact continuously on the economy, with far reaching effects on the outcomes generated under any policy regime.

These problems are not unique to the evaluation of monetary policy regimes, and monetary economists can and have learnt from the evaluation of other public policies how to address some

of these problems. Ul Haque and Kahn (1998) identify four solutions that have been used to address the problem of the counterfactual in evaluating public policy:

Firstly, "before-after" methods can be used to compare the outcomes of a policy in an economy before and after the police change. However, the before-after method fails to account for the initial conditions or the other shocks which disturbed the economy in the two relevant periods and is hence likely to lead to systematic mistakes in policy evaluation (Ul Haque and Kahn, 1998 9). Where inflation targeting is concerned this is particularly serious given the impact of international events – for example price shocks in the energy sector – on domestic inflation and output fluctuations. Further, the correct counterfactual for evaluating the outcomes under inflation targeting is not the economy's performance before inflation targeting, but the performance of the economy had inflation targeting not been implemented over the relevant period.

A second method for evaluating policy outcomes is called the "with-or-without" method and compares outcomes in those countries that have implemented the policy under investigation to those which have not. However, policy change is not random and under the assumption of rational policy makers a regime change is a negative judgement on the incumbent regime (Ul Haque and Kahn, 1998: 9-10). Those countries that have adopted inflation targeting are precisely those where the cost of adjusting the institutions of their monetary policy regime were expected to be outweighed by the benefits of the new regime. The counterfactual for these countries are not those countries where the expected benefits of regime change were outweighed by the cost of adjusting monetary policy institutions.

Thirdly, Ul Haque and Khan (1998) identify what they call "generalised evaluations" according to which counterfactuals are constructed from regime changing countries by way of adjusting for difference in initial conditions and exogenous shocks. Whereas this method addresses some of the most serious problems undermining policy evaluation it assumes access to detailed knowledge of the following dimensions, which are rarely available: firstly, the initial conditions of the country has to be described in considerable detail; secondly, the reduced form relationships describing the transmission mechanisms of policy must be known and, finally, the reaction function of policy makers must be known, to allow modelling of how they would have responded without the regime change. These exacting information requirements count against "generalised evaluations" of inflation targeting, despite its evident optimality.

Finally, computable general equilibrium models could be used to model the effect of changes by simulating the effects of various policy regimes[300] (Ul Haque and Kahn, 1998). The required computable general equilibrium models are, just as with the generalised evaluations, information intensive and perhaps prohibitively so where developing countries are concerned.

## 6.1 EVALUATIONS IN THE LITERATURE

This subsection summarises the empirical results of 4 important studies amongst the more recent empirical evaluations of inflation targeting, and were selected for their differences in scope, methodology and results. The four papers are: Hu[301] (2003), Landerretche, Corbo and Schmidt-Hebbel (2002), Neumann and Hagen (2002) and Ball and Sheridan (2003). Earlier studies by Kuttner and Posen (1998), Cecchetti and Ehrmann (2002), Mishkin and Posen (1997) and Debelle (1997) are discussed comprehensively in Neumann and Hagen (2002). The earlier results are not repeated here as the more recent studies encompass the earlier, both in terms of method and more extensive data.

### *6.1.1 Ball and Sheridan*

Ball and Sheridan (2003) compares the performance (in terms inflation, output and interest rates) of 7 OECD countries[302] that have adopted inflation targeting to 13 OECD countries with alternative monetary policy regimes. Their study is a combination of the before-after and with-or-without methods described above. They control for initial conditions by including only moderate inflation OECD countries in the sample (and controlling for the initial level of inflation), and excluding new entrants since 1980 as well as those member countries that have

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[300] Other models that are frequently used to evaluate policy include: New Keynesian policy models, Real Business Cycle models, dynamic stochastic equilibrium models, multi-step forecasting single equation models and large structural macro-econometric models.

[301] In one of the more recent studies Hu (2003) supports this choice by dividing the literature into three strands and referring to Landerretche, Corbo and Schmidt-Hebbel (2002) as representative of the strand that investigates the impact of inflation targeting on the ability to forecast inflation, Neumann and von Hagen (2002) as representative of the strand that investigates the impact of inflation targeting on output and inflation variability and Ball and Sheridan (2003) as representing the literature that finds little concrete evidence of the positive outcomes claimed for inflation targeting.

[302] Australia, Canada, Finland, Spain, Sweden, U.K. and New Zealand had adopted inflation targeting prior to 1999.

experienced annual inflation in excess of 15% during the nineties (for example, Greece and Turkey). This leaves a sample of 20 countries of which 7 are classified as inflation targeters.

The before-after strategy followed by Ball and Sheridan (2003) involves comparing the post targeting experience of the 7 targeting countries with their experience over a shorter period (since 1985) and a longer period (since 1960). They also distinguish between constant-inflation targeters and non-constant inflation targeters[303]. For a with-without comparison, the histories of the 13 non-targeting countries were also split into a post-targeting period (1993, quarter 3; the mean starting date of targeting by the 7 inflation targeters) and a longer and shorter pre-targeting period (starting in 1960 and 1985 respectively).

Ball and Sheridan (2003) found that though the inflation targeters had worse inflation histories than the non-targeters, their inflation outcomes have subsequently converged on the lower and more stable levels of the non-targeters. However, it would be a *post hoc ergo propter hoc* fallacy to conclude from such evidence that inflation targeting caused the more favourable post-targeting outcome. Rather both regression to mean and third factors (like a general tendency to lower inflation internationally) are observationally equivalent hypotheses. Once they had controlled for initial inflation, Ball and Sheridan (2003) find at best weak statistical evidence that inflation targeting has lowered the level of inflation for targeters and no statistical evidence of dampening inflation variability. Again, targeters seem to have benefited from a fall in inflation persistency during the targeting period, but not more so than the non-targeters.

Both the level and variability of output growth can be affected by a change in the monetary regime. Though Ball and Sheridan (2003) find a positive effect for inflation targeting on the level of growth, this effect is not statistically significant. Nor do they find a significant effect on output variability, once the general drop in inflation variability during the nineties is taken into account. Ball and Sheridan's (2003) results for long term and short term interest rates are similar.

Whereas Ball and Sheridan's (2003: 35) sobering analysis does not amount to an argument against inflation targeting, they do conclude that "...the informal and institutional aspects of inflation targeting – the public announcement of targets, the inflation forecasts, the enhanced

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[303] A constant inflation targeter has used a constant target or range as inflation target, whereas the target changed for non-constant inflation targeters (this was only true for Spain in Ball and Sheridan's sample). The distinction is important since the particular benefits of inflation targeting may only obtain during periods of constant inflation targeting (Ball and Sheridan, 2003).

independence of central banks, and so on – are not important to the economy." However, the results behind this conclusion are to a large extent driven by their controlling for mean reversion in the construction of counterfactuals[304]. The impression of their argument on the reader, therefore, turns on whether one considers mean reversion a natural occurrence in the social world, or whether the apparent mean reversion achieved by the targeting countries is seen as confirmation of the regime's merit.

### *6.1.2 Neumann and von Hagen*

The Neumann and von Hagen (2002) study was apparently motivated by a paradox in the literature on inflation targeting, that is: "The oddity...that, despite the lack of empirical evidence supporting the advantages of IT [inflation targeting], its proponents consistently argue that the failure to adopt it jeopardises the ability of a central bank to deliver price stability" (Neumann and von Hagen, 2002: 127). They consider the problem from three angles: firstly, they analyse the short run variability of inflation and interest rates in IT countries. Secondly, they estimate Taylor rules for inflation targeting countries and a control group to determine whether inflation targeting has led to systematic changes in monetary policy behaviour. Finally, they use an event-study approach to compare the reaction of inflation targeting central banks during the oil shocks of 1978 and 1998.

Firstly, Neumann and von Hagen's (2002) analysis of inflation and interest rate volatility under inflation targeting is based on the with-without methodology where the inflation targeting group includes Australia, Canada, Chile, New Zealand, Sweden and the UK and the control group is Germany, Switzerland and the USA[305]. Their sample covers the period 1978 to 2001 at both quarterly and annual frequencies. Calendar year 1992 is taken as the dividing line that marks a common inception date for those countries that adopted inflation targets.

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[304] The importance of the mean-reversion technique is demonstrated by the contrast between Lee (2000), who used mean reversion and found results comparable to that of Ball and Sheridan, and Neumann and von Hagen (2002) where mean reversion was not used, and the results were very different.

[305] Mishkin (2002) argues that monetary policy in this control group of successful non inflation targeting countries is not very different from the implementation of monetary policy under inflation targeting. Therefore, Mishkin (2002: 151) concludes from the evidence in Neumann and von Hagen (2002) that "...the adoption of inflation targeting should be seen as a convergence to best practise in the conduct of monetary policy."

The with-without study found that the level and volatility of inflation had fallen during the inflation targeting period, but that this was true for the inflation targeters and the control group alike. However, Neumann and von Hagen (2002) do note that the targeters had a worse pre-1992 track record and that the adoption of inflation targeting could therefore have been endogenous. The same pattern was observed for short term interest rates and the output gaps over the two sub-samples for the targeters and the control group.

Secondly, Neumann and von Hagen (2002) estimated Taylor rules to approximate the systematic component of monetary policy in both groups of countries and for the pre- and post-inflation targeting periods. According to Neumann and von Hagen (2002: 133) the estimated Taylor rules appear to offer "reasonable descriptions of central bank behaviour." The estimated equations indicate a convergence in behaviour, with inflation targeting central banks adopting policy rules closer to that that which was typical of the German Bundesbank and the Swiss National Bank. That is to say, inflation targeting central banks have adopted a systematic behaviour similar to that of two central banks with the best track records on prudent monetary policy. A second result is that inflation targeting central banks in the sample (excepting Canada) have been less responsive to the output gap since adopting the new framework for monetary policy[306].

Neumann and von Hagen (2002) also used vector autoregressive techniques (VARs) to trace the effects of shocks to inflation and the output gap on short term interest rates. The results from their impulse response functions suggest that both sets of central banks adopted a less activist policy during the inflation targeting period, as can be seen, for example in a smaller short term response, but a larger long term response, to an inflationary shock. From the variance decomposition of their VARs Neumann and von Hagen (2002: 134-136) concluded, in turn, that inflation accounted for an increasing portion of the variance in short term interest rates since inflation targeting. This is another similarity between the inflation targeting group and the transmission mechanisms observed in Switzerland and Germany.

Thirdly, Neumann and von Hagen (2002) considered a period specific analysis in the hope of detecting changes in the response by central banks to external shocks. They identified two periods of rising oil prices, during 1978 and 1998, as exogenous, but relevant to monetary policy

[306] This is not a strong result though: for the UK and Chile the output gap coefficient remains insignificant and the change small. It is only for Canada that the result seems strong, and should be interpreted in conjunction with the size of the pre-targeting output gap response in Canada which was three times greater than for any of the other estimated Taylor functions (Neumann and von Hagen, 2002: 132, Table 2).

makers. Because these episodes do not form a controlled experiment though, the method of double differences[307] were used to isolate the impact of the regime change on short and long term interest rates and inflation.

The entire sample benefited from a better inflation experience during the second period under consideration, but the difference was more marked in the inflation targeting countries. However, the difference is not statistically significant. Using long bond yields to proxy monetary policy credibility, Neumann and von Hagen (2002) found that the introduction of inflation targeting brought a statistically significant credibility gain for monetary policymakers. Central banks were also not required to raise interest rates as sharply in the second period as was deemed necessary during the first period, and this shift was more marked (and statistically significant) for the inflation targeting group.

In conclusion, Neumann and von Hagen (2002) argued that the three methods of analysis jointly suggest that inflation targeting has made a difference to the behaviour of central banks, as well having had a beneficent effect on the outcomes of the monetary policy process, measured in terms of inflation and long term interest rates. However, their study did not provide evidence that inflation targeting outperformed the targeting of monetary aggregates as implemented in Switzerland[308] or Germany.

### *6.1.3 Landerretche, Corbo and Schmidt-Hebbel*

Landerretche et al. (2002) address a dizzy array of questions in their landmark study. These questions include: firstly, the extent to which inflation targeting countries have managed to reduce inflation and secondly, the cost of this disinflation; thirdly, whether inflation targeting has changed the behaviour of the central bank; fourthly whether it has affected the economy's behaviour; and, fifthly whether it has affected the transmission mechanism; sixthly, they ask whether inflation has become more predictable under inflation targeting, and finally, whether central banks became more inflation averse under inflation targeting.

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[307] See Neumann and von Hagen (2002: 141) for a description of the technique. It is important to note that the technique assumes an approximately similar effect for the control variables on all countries.

[308] It is instructive to note that the Swiss National Bank has since adopted inflation targeting in the place of money targeting.

Their study combines the with-or-without and the before-after methods described above with a case study of Chile's experience with inflation targeting[309]. Their sample has been constructed with care and comprises: 9 fully fledged inflation targeters (with inflation targeting experience dating back to 1995 at least) of which 7 are developed countries (Australia, Canada, Finland, New Zealand, Spain, Sweden and the United Kingdom) with stationary inflation targets and 2 are developing countries (Chile and Israel) where the inflation target had declined steadily over the relevant period. Further, 4 developing countries (Colombia, Korea, Mexico and South Africa) were included as countries in the process of adopting inflation targeting during the nineties (called potential inflation targeters). Yet a third group of non-inflation targeting developed countries forms the control group for the with-and-without part of the study and comprises: Denmark, France, Germany, Italy Japan, the Netherlands, Norway, Portugal, Switzerland and the USA (Landerretche, et al., 2002).

A first issue considered by Landerretche et al. (2002) is the extent to which inflation targeting countries have succeeded in lowering inflation and attaining their explicit inflation targets. They consider three dimensions of this issue: firstly, a before-after analysis of inflation reduction around the date of the regime changes; secondly, the speed of disinflation and thirdly the average deviation of inflation outcomes from the target levels.

Both developed and developing country inflation targeting countries experienced declines in their levels of inflation prior to and following the regime change. The decline was an average of 5.9% for the fully-fledged inflation targeters and 13.3% for the potential inflation targeters, measured as the decline of inflation over a period starting 3 years prior to the regime change and ending 1 year after the change. Among the fully-fledged inflation targeters the developed countries converged on a stationary level of inflation after 10 quarters (on average) a process that took considerably longer for Chile (36 quarters) and Israel (24 quarters) (Landerretche, et al., 2002: 5).

Actual inflation outcomes compared favourably with the policy targets in this group of inflation targeters and for the period under consideration[310] (that is, 1989-2000). Annual inflation deviated from its target by an average of 68 basis points (scaled for the prevailing inflation rate) amongst

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[309] This choice was motivated by Chile's relatively long experience with inflation targeting amongst the group of emerging market inflation targeters (Landerretche, et al., 2002).

[310] With reference to the distinction drawn in chapter 5 this is an evaluation of the policy framework, and not of the stance of policy given the framework.

the fully fledged inflation targeters with Australia, Finland and Sweden performing worst (Landerretche, et al., 2002: 6).

Landerretche et al. (2002) were also interested in the cost of the observed disinflation. To that end they calculated sacrifice ratios[311] for the various groups of inflation targeters and for the control group. Whereas GDP based sacrifice ratios seemed to indicate that inflation targeting had lowered the output cost of disinflation this result was overturned when Landerretche et al. (2002) used higher frequency output data (such as industrial production).

A third question posed by Landerretche et al. (2002) was whether inflation targeting had changed the behaviour of central banks as expressed by the policy feedback function. They used two different econometric techniques to investigate the issue, that is: a variance decomposition of a small monetary sector VAR to investigate the contribution of inflation and output innovations to subsequent interest rate innovations and, secondly, an analysis of estimated coefficients in simple Taylor rules.

The results of the variance decomposition analysis indicate that the inflation targeting central banks have become less sensitive to both inflation and output shocks in the setting of their interest rate. Landerretche et al. (2002) interpret this as evidence of rising credibility of the inflation targeting central banks, as less policy activism was called for in response to comparable shocks during the nineties. Variance decomposition for the control group does not show a comparable decline in the impact of inflation shocks on interest rate variability, though interest rates were less sensitive to output shocks for the control group, too.

Landerretche et al. (2002) estimated Taylor rules (using rolling ordinary least squares for the nineties) with quarterly data for each country in the inflation targeting groups and the control group. The coefficients of these rolling regressions do not show a trend during the nineties for the industrialised inflation targeters, whereas they show a downward trend for both Chile and Israel. This suggests Landerretche et al.'s (2002) argument that the two developing country inflation targeters have gradually gained credibility over the course of the decade.

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311 The sacrifice ratio is calculated as the ratio of cumulative deviation of output deviations (from potential output) divided by the inflation reduction.

A fourth issue at stake in Landerretche et al. (2002) is whether the adoption of inflation targeting had affected the structure of macroeconomic relationships in the relevant economies. Variance decomposition of the same country VARs used above was employed to this end.

Considering the persistency of inflation, Landerretche et al. (2002) found some evidence of a declining persistence in the effect of lagged inflation shocks on subsequent inflation. This may be indicative of more forward-looking inflation expectations in the inflation targeting countries, and is further evidence of rising credibility for these regimes. At the end of the eighties, inflation shocks had a more pronounced effect on output gap fluctuations in the inflation targeting group, when compared with the control group. The nineties saw a decline in the estimated effect of inflation shocks on the output gap in inflation targeting countries, reaching levels comparable to those observed for the control group. By implication, the regime change must have transformed the expenditure channel of the monetary policy transmission mechanism in the inflation targeters, with the more credible nominal anchor dampening the output effect of inflation shocks (Landerretche, et al., 2002).

The inflation pass-through of exchange rate shock did not vary systematically across the country groups or over time in this VAR analysis. Apparently the regime change did not affect the exchange rate channel of the transmission mechanisms.

A penultimate issue considered by Landerretche et al. (2002) is whether inflation has become easier to forecast under inflation targeting. The same country VARs mentioned above were used to investigate this issue by considering one-period ahead out-of-sample forecasts for inflation. To evaluate the accuracy of the forecast the squared forecast errors were averaged (after scaling for the level of inflation) for inflation targeters and the control group. The results indicate a decline in the forecast errors on inflation for the inflation targeting countries during the nineties, leaving them with comparable forecast errors to that of the control group. This was especially true of the developing countries in the inflation targeting sample as well as countries like Mexico in the potential inflation targeting group (Landerretche, et al., 2002). At the start of sample period, the forecast period in the inflation targeting group had been significantly larger.

Finally, Landerretche et al. (2002) calculated the change in inflation aversion for inflation targeting countries and the control group over the relevant sample. Though few central banks publish the inflation aversion in their loss function Landerretche et al. (2002) used a

methodology pioneered by Cecchetti and Ehrmann (2002) to calculate a central bank's implicit inflation aversion. However the underlying models are slightly different as are the results in Landerretche et al. (2002) when compared with Cecchetti and Ehrmann (2002). Landerretche et al. (2002) found no trend over the course of the nineties in the inflation aversion of the industrialised inflation targeters[312], while industrialised non-targeters and developing country inflation targeters both experienced an upward trend in inflation aversion.

By way of summary, the outstanding results in Landerretche et al.'s (2002) extensive study on the empirical results of inflation targeting were: inflation had declined and become more predictable in inflation targeting countries, with some indication of improved sacrifice ratios for the period of disinflation. Inflation targeting seems to have offered a credible nominal anchor which has lowered inflation persistent, indicating perhaps more forward looking inflation expectations. Enhanced credibility of the new monetary policy regime is also consistent with the observed decline in the sensitivity of interest rates to output and inflation shocks in the inflation targeting countries.

In contrast with Cecchetti and Ehrmann (2002), Landerretche et al. (2002) did not find a rise in the inflation aversion of industrialised inflation targeters though developing country inflation targeters did show a rise in inflation aversion in this study. Amongst the studies discussed in this chapter Landerretche et al. (2002) present the most favourable assessment of the inflation targeting experience. Nevertheless, the inherent shortcomings of the with-or-without and before-after methods employed by them undermine the persuasiveness of the evidence.

### *6.1.4 Hu*

Hu (2003) uses the most comprehensive data set yet in this literature (a collection of 66 countries for the period 1980 to 2000) to reconsider the effect inflation targeting on output and inflation variability as well as the trade-off between the two. Additionally, Hu (2003) considers whether certain events or country features can be associated systematically with the country's adoption of inflation targeting.

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[312] Cechetti and Ehrmann (2002) found a rise in the inflation aversion of inflation targeting countries.

The data set used in Hu (2003) comprises 66 countries - from the OECD as well as developing countries from Africa, Asia and Latin America – for the period 1980 until 2000 at an annual frequency. Hu (2003) categorised 22 of these countries as inflation targeters[313].

Considering first the question of potential explanatory factors for a country's choice of adopting inflation targeting Hu (2003) estimates a logit function with up to 17 explanatory variables[314] grouped into three broad categories: economic condition variables, economic structure variables and economic institution variables. Since Hu's (2003) interest here is only in modelling the regime change, a country leaves the sample after the dependent variable has changed from zero to one, that is after the adoption of inflation targeting. His modelling strategy was general-to-specific, starting with a full specification, followed by reduction of the modelling by eliminating insignificant variables, or variables with unexpected signs. The exercise was repeated using 3 year moving averages for all the non-dummy explanatory variables, on the argument that the cumulative experience might be more relevant for the decision to undertake a regime change, as opposed to the conditions in single year.

Hu's (2003) logit regression yielded the following results: GDP growth is significantly associated with a country's switch to inflation targeting and with a negative coefficient; the explanation for the negative coefficient being that high GDP growth is a proxy for successful macroeconomic policy which lowers the incentive for changing the monetary policy regime. The same argument supports the inclusion of a significant and positive real interest rate coefficient in the final model.

The relationship between inflation and the regime change was negative and significant, indicating a potential concern for the credibility of the new regime if the switch is made at high levels of inflation. A (*de facto*) floating exchange rate regime is positively and significantly associated with adopting inflation targeting, which is consistent with the view that absent a fixed exchange rate inflation targeting provides an alternative nominal anchor. Finally, a fiscal surplus is positively and significantly associated with the adoption of inflation targeting, capturing the observation that fiscal dominance (proxied for with increasing fiscal deficits) is inconsistent with inflation targeting. Though Hu (2003: 14) describes these results as "informative and encouraging" the

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313 In addition to the inflation targeters listed in table 5.1 Hu's (2003) list includes Finland, Peru, the Philippines, and Spain.

314 Hu (2003) used what he called the half-year rule to construct the binary dependent variable. If a country adopted inflation targeting formally in the second half of a calendar year then the dependent variable becomes 1 for that year, but when the formal change occurred in the first half of the year, then the dependent variable was set at 1 for the preceding calendar year.

econometric output is only preliminary at this stage in the absence of exhaustive diagnostic testing[315]. Nevertheless, Hu's (2003) analysis of the decision to switch to inflation targeting suggests that there is much scope for future research in this area

In addition to modelling the inflation targeting regime switch, Hu (2003) also analysed the effect of adopting inflation targeting on inflation and output variability and he does so using a combination of the before-after and the with-or-without methodologies described above. To examine the inflation and output variability of inflation targeters and non-inflation targeters Hu (2003) purged his data set of countries with exceptionally high inflation rates as well as those inflation targeters with less than 4 years of history with the new regime. This left a sample of 37 countries, of which 8 were inflation targeters.

For the inflation targeters Hu (2003) calculated the standard deviation of output and inflation for two periods: from 1985 until the year preceding their regime change, and from the first year of inflation targeting until 2000. This calculation was repeated for the control group, but split into a pre- and post-1994 period.

Hu's (2003) descriptive statistics shows that all of the inflation targeters experienced a decline in the level as well as the variability of inflation from the pre- to the post-targeting period. The same is true of the control group for the pre- and post-1994 periods. Since the inflation targeting countries had a worse inflation experience prior to their regime change, but a comparable experience subsequently, it follows that the inflation targeting group converged on the control group following the adoption of the new policy regime. Whether the convergence can be attributed to the policy change remains an open question though.

A similar set of descriptive statistics for output growth and the variability of output growth indicates that both groups experienced lower output volatility in the second period, while inflation targeting countries also enjoyed a higher average growth rate. This rise in their average growth rate caused the inflation targeters to converge on the growth rate of the control group, the latter of which had enjoyed higher growth than the targeters in the first period.

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[315] Hu (2003) uses only the pseudo-$R^2$, t-statistics and his own priors for coefficient signs as diagnostic tests.

Finally, Hu (2003) tries to discover whether inflation targeting improves both inflation and output performance by estimating a regression with output and inflation variables as dependent variables respectively, some control variables and a variable that indicates inflation targeting. The latter variable is insignificant in the output variability equation, but unexpectedly positive and significant in the inflation variability equation. However, since these equations explain very little of the variation in the dependent variable and no diagnostics are offered to support their specification it is unclear how concerned one should be with the results.

In summary, Hu (2003) offers an empirical model to identify some of the systematic factors associated with the adoption of inflation targeting. The significant factors in his logit model include: GDP growth, the real interest rate, the inflation rate, the fiscal surplus and the *de facto* exchange rate regime. Additionally, Hu (2003) uses descriptive statistics to investigate whether the inflation and output experience of the inflation targeting countries had improved subsequent to the regime change. In this part of the study Hu's (2003) result confirm what is already known from the literature and he does not make headway in resolving the methodological problems of the before-and-after and with-and-without methods.

## 6.2 ALTERNATIVE APPROACHES TO EVALUATING INFLATION TARGETING

To date, the historical evaluations of inflation targeting regimes have not converged on a consensus opinion about the practical experience with this regime. The common factor in the literature is the recognition that inflation targeting countries have improved their own inflation experience (in terms of both the level and the variability of inflation), but since this occurred during a period of general disinflation, internationally, it is unclear whether the success should be attributed to inflation targeting or a third factor affecting the world economy.

### *6.2.1 Disaggregating the total improvement in output-inflation variability*

Recent econometric work by Cecchetti, Flores-Lagunes and Krause (2001) casts some light on this question. Considering a sample of 23 mainly industrialised (but including some developing

countries) they construct for each country an efficient frontier for monetary policy[316] (capturing the trade-off between variability in output and inflation) and locate the observed outcome in the economy relative to this frontier (called the performance point) over two periods 1982Q1 until 1989Q4 and 1990Q1 until 1997Q4. Improvements in the observed variability of output and inflation can then be disaggregated into frontier shifts and movements of the performances point towards the frontier. The latter shift is then attributed to improved monetary policy.

This methodology is a version of the generalised approach to policy described by Ul Haque and Kahn (1998) even though Cecchetti et al. (2001) did not use it explicitly to investigate the effects of a regime change. Rather, they were concerned with the contribution made to improved outcomes under all monetary policy regimes during the nineties.

Using this methodology Cecchetti et al. (2001) found that monetary policy had improved the output-inflation performance of 20 economies in their sample of 23 over the relevant period. Eight of the twenty are in the group of inflation targeting countries shown in table 5.6, while a further eight have joined the EMU, having previously been part of the ERM. This leaves only Denmark (which substituted a hard peg with the Euro for its hard peg against the DM), Japan, Switzerland and the USA with performance gains through monetary policy other than inflation targeting or a hard peg in the Cecchetti et al. (2001) set.

Further, with one exception, improved monetary policy accounted for more than half of the total improvement amongst the inflation targeting countries. The UK is the only exception, and is a marginal exception, with 48% of the total improvement attributed to better monetary policy. This result suggests that that, internationally, adopting inflation targeting could have been a cost-effective institutional change as defined in chapter 1. In conjunction with this study the methodology of Cecchetti et al. (2001) was used to investigate the same question in South Africa, the results of which are reported in chapter 7.

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316 This downward sloping curve in inflation-variance output-variance space is known as the Taylor curve, after Taylor (1979). Cecchetti, Flores-Lagunes and Krause (2001) estimated a small structural model of output and inflation for each country, which was then used to trace the Taylor curve by varying the parameter of inflation aversion in the policymaker's loss function.

### 6.2.2 *Revealed preference*

There is a yet another approach to evaluating economic decisions, which has received little emphasis in this literature. If the implementation of a monetary policy regime is seen as a portfolio choice among various alternatives, then rational choice theory could be used to understand the decision of governments and monetary policy authorities. On the standard assumption that policymakers, like other economic actors, act rationally over time, the revealed preference for a policy regime becomes a useful tool for ranking policy alternatives[317]. This is particularly true for monetary policy regimes where the choice of regime is only infrequently made under duress[318].

From a rational choice perspective it is profoundly instructive that no inflation targeting country has yet abandoned the regime[319]. Arguing from revealed preference this adherence to inflation targeting provides a more unambiguously favourable assessment of the first decade if inflation targeting and the empirical assessment by Cecchetti et al. (2001) suggest a reason: many inflation targeting countries have experienced better performance (in terms of out and inflation variability) and in almost all of these cases the bulk of the improvement can be attributed to better monetary policy.

## 6.3 CONCLUSION

In conclusion, almost a decade ago, Persson and Tabellini (1993) observed what they thought was remarkable similarity between inflation targeting and the optimal contract solution to the principal-agent problem of momentary policy. At that time, the observation was largely theoretical, though, as only two central banks (New Zealand and Canada) had implemented full fledged inflation targeting. Subsequently, many developed and developing countries – including South Africa - have implemented similar regimes and though the empirical evaluation of the first

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317 Carare and Stone (2003) employed a revealed preference argument to explain the choice between the three categories of inflation targeting (full fledge, eclectic and inflation targeting lite) in their clarification.

318 This contrasts with the evaluation of the IMF supported structural programmes reported by Ul Haque and Khan (1998), as these countries rarely have any choice but to seek IMF help during financial crises. Revealed preference is, correspondingly, less useful in evaluating IMF programmes.

319 Finland and Spain joined the EMU in 1999 and cannot be said to have abandoned inflation targeting for an alternative domestic monetary policy regime. Instead the Finnish and Spanish polity have joined a larger economic union which implied the loss of domestic monetary policy.

decade of inflation targeting remains contentious, Mishkin and Schmidt-Hebbel (2001: 33) were recently able to conclude that "inflation targeting has been quite successful in controlling inflation and improving the performance of the economy."

The next chapter consists of an institutional evaluation of the present inflation targeting regime in South Africa and is complemented with suggested institutional refinements. Chapter 7 will conclude the theoretical and technical parts of the dissertation leaving the political economy of inflation targeting to be considered in Part III.

# CHAPTER 7 INSTITUTIONS OF INFLATION TARGETING

The Utopias, Arcadias and Republics that spread across the maps of social reform by philosophers have "never passed from literary into political history" as Lord Acton (1909 [1862]: 132) observed, since "these fanciful societies" simply omitted the elements in this world that offended their authors and inspired their creation. Chapter 3 told the unhappy history of democratic money while chapter 4 showed how a theoretical system of monetary rules would avoid those problems; inflation targeting is such a rule as was argued in chapter 5. But to pass from the theory of inflation targeting to a solution for the problems of democratic money, the theory must be complemented with an efficient institutional design according to the criteria of chapter 1[320]. This chapter provides the relevant institutional evaluation with special emphasis on the institutional design of inflation targeting in South Africa.

Since institutional arrangements can be more or less far reaching, the "degree" of inflation targeting could broadly be gauged using a classification system such as that introduced in the first section of this chapter. This descriptive section is followed by a brief theoretical introduction to the principal-agent models used in modern monetary economics in section 7.2. These models will form part of the institutional evaluation of inflation targeting in section 7.3.

Developing countries face particular challenges with the implementation of an inflation targeting regime and these are considered in section 7.4 before the particular institutional shortcomings of the SARB's inflation target are described in section 7.5. From these shortcomings a set of piecemeal institutional reforms are derived in section 7.6.

## 7.1 CLASSIFYING INFLATION TARGETING REGIMES

Chapter 1 emphasised two important features of social institutions, they were: the absence of unique blueprints that fit all countries or eras and that the cost of institutional change leads to path dependence and implies that there will be diversity in the institutional design even for those countries which claim to have adopted inflation targeting as a framework for monetary policy. This sub-section considers (briefly) the classification recently advanced by Carare and Stone

[320] These institutions of monetary policy encounter the paradox of power no less certainly than does other institutions, and the resolution of the paradox is taken up in part III of this dissertation.

(2003), which splits inflation targeting regimes into three categories: full-fledged inflation targeters, eclectic inflation targeters and inflation targeting lite regimes. This work builds on earlier work at the IMF – by Masson, Savastano and Sharma (1997) – that measured the degree of inflation targeting empirically, and that was used to gauge the degree of inflation targeting in South Africa by du Plessis (2002a). The classification of the policy regime is important as it guides the institutional issues that require attention in the institutional evaluation below. For example, it is purposeless to ask whether an inflation targeting lite central bank risks the danger of a hardening target range, whereas that is of pressing concern in a full-fledged inflation targeting regime.

### *7.1.1 Classifying the SARB's inflation target*

Carare and Stone (2003) use a two-dimensional system to classify inflation targeting regimes. Their first dimension measures the clarity of the inflation target, which is gauged by the public commitment to the target as well as the institutional framework, erected to support the pursuit thereof. The second dimension is the credibility of the target, which they measure in a backward looking manner through the track record on inflation[321] and in a forward-looking manner by the market ratings on long-term government bonds[322]. This two-dimensional schema is used to classify inflation targeting countries into one of the following three categories:

1. *Full-fledged inflation targeting*: the inflation targeting countries in this group have a medium or higher degree of commitment to an explicit inflation target, which is supported by a transparent and accountable framework for monetary policy that supports the Bank in its pursuit of the explicit target. By 2001 18 countries (seven developed and 11 emerging market countries) were in this group according to Carare and Stone (2003) and are listed in table 7.1 below[323].
2. *Eclectic inflation targeting*: this group includes countries that maintain low and stable inflation without recourse to an explicit inflation target, due to the very high degree of established

[321] This is reasonable given the emphasis on the inflation track record as the way to establish credibility, emphasised by academic economists and central bankers alike and discussed in chapter 3. Recently, Cechetti and Krause (2002) also used the inflation track record as their measure of the policy regime's credibility.

[322] The credit rating is a forward-looking evaluation of the credibility not just of the monetary policy regime, but also of the entire macroeconomic policy mix. This introduces an identification problem with this measure of forward-looking credibility.

[323] The group is the same as in table 5.6.

credibility for their monetary authorities. This group consists of 5 developed economies, including the USA and the EMU, as shown in table 7.1 below (Carare and Stone, 2003).

3. *Inflation targeting lite*: monetary authorities in this group lack the credibility to commit to an explicit inflation target, but nevertheless pursue the broad goal of low and stable inflation. The relative lack of credibility in this group results from the nature of shocks in these economies as well as the relatively underdeveloped institutional and financial frameworks which are overburdened to deal with these shocks in the manner of the full fledged or eclectic inflation targeters. Inflation targeting lite is seen as a transitional phase during which the authorities implement the structural and institutional reforms required for full-fledged inflation targeting. Carare and Stone (2003) classified 19 emerging market countries in this group.

Full fledged and eclectic inflation targeting countries share a number of macroeconomic characteristics which distinguish them from the inflation targeting lite countries group (Carare and Stone, 2003). The eclectic inflation targeting countries are on average richer than the countries in the other two groups, with the full-fledged inflation targets, in turn, richer than the inflation targeting lite group. Full fledged inflation targeting countries have the strongest fiscal positions, measured by the level of debt to GDP, but the relatively higher debt in the eclectic inflation targeting group is not expected to impair their ability to service the debt[324].

Both full fledged and eclectic inflation targeting central banks provide little or no finance for government expenditure, whereas seigniorage and monetising is more prevalent amongst inflation targeting lite central banks. According to Carare and Stone (2003: 15) the full fledged inflation targeting central banks enjoy the strongest legal protection from fiscal dominance.

The eclectic inflation targeting group has the most developed financial sectors and deepest asset markets, whereas the inflation targeting lite group has the least developed financial markets in this group. Full-fledged inflation targeting countries have more developed financial sectors than the inflation targeting lite group. In summary, those countries that have adopted full-fledged inflation targets have well-developed and deep financial markets, and strict legal protection from

[324] See, for example, the very high credit ratings for this group in table 7.1.

fiscal dominance[325]. In turn, the credibility of monetary authorities in the eclectic inflation targeters is sufficiently high that they have not pushed for further legal protection from potential fiscal dominance, nor have they decided to adopt explicit inflation targets (yet) (Carare and Stone, 2003: 15-17).

Table 7.1 indicates the relative credibility of monetary policy amongst the full-fledged and eclectic inflation targeters, using Carare and Stone's (2003) criteria.

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[325] Carare and Stone's (2003: 29) historical analysis suggests that emerging market countries follow a typical pattern of reform prior to adopting full-fledged inflation targets, including disinflation, fiscal consolidation, extensive financial market deepening. In this way, central banks in emerging market countries address some of the potential concerns with inflation targeting in developing countries discussed in section 7.4 below.

Mishkin and Schmidt-Hebbel (2001) also found that inflation targeting central banks in developing countries have (on average) implemented more extensive communications strategies to enhance the credibility of the monetary policy regime, than has been the case amongst developed countries. This is consistent with the observation that the full-fledged inflation targeting countries revealed a preference for stronger institutional commitment mechanisms to build credibility for their inflation targeting regimes. This issue is considered at greater length in section 7.4 below.

*Table 7.1* *Measuring the credibility of full fledged and eclectic inflation targeters*

| Country | Target[a] | Inflation record (1998 – 2002)[b] | Inflation ranking | Credit rating 2001[c] | Ranking of credit rating |
|---|---|---|---|---|---|
| | | *Full fledged inflation targeters* | | | |
| Australia | 2-3% over the cycle | 2.83% | 7 | AAA | 1 |
| Brazil | 4% +/- 2.5% | 5.84% | 13 | BB | 8 |
| Canada | 2% +/- 1% | 1.96% | 3 | AAA | 1 |
| Chile | 3% +/- 1% | 3.71% | 10 | AA | 3 |
| Colombia | 6% for 2002 | 11.6% | 18 | BBB | 7 |
| Czech Republic | 1-3% | 4.88% | 12 | A+ | 4 |
| Hungary | 3.5% +/- 1.5% | 9.96% | 16 | A | 5 |
| Iceland | 2.5% +/- 1.5% | 4.45% | 11 | AA+ | 2 |
| Israel | 1-3% | 3.56% | 9 | A+ | 4 |
| Korea | 2.5% +/- 1% | 3.5% | 8 | A+ | 4 |
| Mexico | 3% +/- 1% | 10.98% | 17 | A- | 6 |
| New Zealand | 0-3% | 1.77% | 2 | AAA | 1 |
| Norway | 2.5% +/- 1% | 2.41% | 5 | AAA | 1 |
| Poland | 3% +/- 1% | 7.67% | 15 | A | 5 |
| South Africa | 3-6% | 6.06% | 14 | A- | 6 |
| Sweden | 2% +/- 1% | 1.13% | 1 | AAA | 1 |
| Thailand | 0-3.5% | 2.51% | 6 | A- | 6 |
| U.K. | 2.5% +/- 1% | 2.26% | 4 | AAA | 1 |
| *Median* | | *3.64%* | | *A+* | |
| | | *Eclectic inflation targeters* | | | |
| EMU | 0-2%[d] | 1.88% | 5 | AAA- | 2 |
| Japan | NA | -0.4% | 1 | AA- | 3 |
| Singapore | NA | 0.36% | 2 | AAA | 1 |
| Switzerland | 0-2%[d] | 0.49% | 3 | AAA | 1 |
| USA | NA | 2.31% | 5 | AAA | 1 |
| *Median* | | *0.49%* | | *AAA* | |

a: Source: Carare and Stone (2003) and the web sites of the various central banks.

b: Compiled form the IFS database (except for the EMU, which was compiled with data from the ECB). The inflation rate shown is the average year-on-year change in consumer prices from the end of the first quarter 1998 until the end of the second quarter 2002.

c: The credit rating for local currency denominated sovereign debt as of April 2003 (obtained from Standard and Poor's at http://www2.standardandpoors.com) and rated on the scale shown in Appendix 7.1

d: The ECB has an inflation target, but without a clear ranking between this target and the potentially conflicting monetary growth target. The Swiss National Bank has adopted an inflation target, which will move Switzerland to the group of full fledged inflation targeters in the future. For the period covered in the table, however, the SNB was still an eclectic inflation targeter.

The eclectic inflation targeters have benefited from the best track record on inflation. In a combined set of both groups the worst eclectic inflation targeter would have been the USA with an average inflation rate of 2.31% over the period. Carare and Stone (2003) interpret this as evidence that those developed countries with commendable track record on inflation do not need the commitment mechanism offered by inflation targeting to enhance the credibility of monetary policy.

Indeed, adopting full-fledged inflation targeting might be sub-optimal for these countries as it would limit the scope for anti-cyclical monetary policy, argued Carare and Stone (2003). However, Switzerland's adoption of inflation targeting in the 2000, and the continuing discussion of similar regime change at the ECB and Bank of Japan[326] (and even the Federal Reserve Board) weighs against Carare and Stone's (2003) interpretation. An alternative interpretation is that the expected benefit of inflation targeting relative to the cost of institutional change is less in these countries and that regime change will consequently take longer and enacted only at an opportune moment. The end of Wim Duisenberg's tenure at the ECB and that of Alan Greenspan at the Federal Reserve Board may be such opportunities for the two largest central banks respectively (see Goodfriend, 2003 for an argument along these lines).

The recent inflation record of full-fledged inflation targeting countries has been outstanding, too, especially given the large number of emerging market economies in the group. Nor are there any surprises amongst the worst ranked countries in this table, with familiar names from Latin America and Eastern Europe. South Africa's inflation record is ranked 14 out of 18, which explains both why the domestic inflation target is amongst the higher in the group of full-fledged inflation targeters and why the SARB's credibility is not yet established at the level of some other central banks in the emerging markets, for example that of Korea or Thailand.

On Carare and Stone's (2003) second credibility indicator, the sovereign credit rating, the SARB's commitment is also ranked below median (though not by much). This forward looking measure captures not only the market's evaluation of future monetary policy, but of a wide range of macroeconomic developments including fiscal policy, exchange rate developments and especially the coherence of the policy mix. Though South Africa' credit rating (A-) is investment grade, it is

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[326] Toshihiko Fukui, Governor of the Bank of Japan, argued in recent testimony to parliament that it is untimely to implement inflation targeting at present, but emphasised that it could be a useful framework when Japan's economy had re-emerged form the prevailing deflationary situation (Pilling, 2003).

below the median (A+) for the group of fully-fledged inflation targeting countries. However, this rating has increased steadily in recent years, which suggests rising credibility for policy commitments by South African policy makers, including the SARB.

The objective measures of credibility used by Carare and Stone (2003) can be complimented by the subjective measures such as the survey on inflation expectations conducted by the Bureau for Economic Research at the University of Stellenbosch (BER). The results of the latest survey is shown in table 7.2, where each row indicates the forecasted average inflation rate for CPIX inflation by analysts in the financial, business or labour sectors respectively.

*Table 7.2* *BER Survey of CPIX Inflation (Surveyed in the Second Quarter of 2003)*

| Sector | 2002[327] | 2003 | 2004 | 2005 |
|---|---|---|---|---|
| Finance | 7.5% | 8.4% | 5.3% | 5.6% |
| Business | 7.8% | 9.2% | 8.4% | 8.1% |
| Labour | 7.1% | 9.5% | 8.7% | 8.3% |
| *Target range* | *3-6%* | *3-6%* | *3-6%* | *3-6%* |

Source: Bureau for Economic Research at the University of Stellenbosch (2002; 2003)

From the BER's inflation survey the SARB's commitment to its inflation target does not yet seem fully credible. This matches the relatively low ranking for the SARB on the objective measures of credibility (in table 7.1) within the class of full-fledged inflation targeting central banks. To be sure, neither of these tests suggests that the SARB is likely to abandon inflation targeting. Rather, since credibility is a question of degree, these tests suggest that there is scope for enhancing the degree of credibility at the SARB.

Whereas the BER's survey summarises the subjective measure of credibility as expressed by analysts in various sectors, the financial markets offer an alternative subjective measure of the SARB's credibility. Market participants have an incentive to exploit the available information on the monetary policy rule to adjust their portfolios. The expectations hypothesis of the term structure of interest rates could be used as a framework for gauging the extent to which market participants were able to foresee changes in the stance of monetary policy (and price those expectations in the yields of securities with longer maturity).

[327] The expectations for 2002 are those from the BER survey in the first quarter of 2002.

Woglom (2003) used this yield curve hypothesis to disaggregate the market's forecast errors on short term interest rates into errors due to unforeseen economic disturbances and those due to unforeseen changes in the stance of monetary policy. His regression analysis indicates that the yield curve had greater predictive power in the post-inflation targeting period domestically. However, he also finds that economic information relevant to the monetary policy rule (inflation and the yield curve) contains information on changes in the stance of monetary policy, in addition to the information contained in the yield curve. And, more surprisingly, the economic information seems to carry more information post-inflation targeting (Woglom, 2003, Table 8).

It is hard to interpret Woglom's (2003) econometric results, but one consistent interpretation is that: firstly, short term interest rates have become more predictable in South Africa post inflation targeting; secondly, the yield curve is increasingly accurate in predicting future changes in the stance of monetary policy, but; thirdly, the Bank has moved more quickly than the market in their adoption of systematic monetary policy, responding in a rule-like manner to economic data (on average) and that fourthly, the market is still learning the monetary policy rule under inflation targeting. Now, learning is costly, and the SARB could lower this cost by being more transparent about their rule. Indeed, Woglom's (2003) empirical work reveals a market increasingly able to price systematic information along the yield curve. As per the expectations of inflation targeting proponents, the SARB could, therefore, enhance the effectiveness of monetary policy by improving the transparency of monetary policy further.

The following subsection uses a more detailed test to locate the institutional weaknesses of the present monetary policy regime. Particular attention is given to the transparency of the policy regime as the subjective tests and Woglom's (2003) econometric results suggest a potential problem in that area.

### *7.1.2 Exploring the credibility deficit of the SARB's inflation target*

Though Carare and Stone (2003) list South Africa amongst those countries that have implemented a full-fledged inflation target, their own score of credibility revealed a credibility deficit for the SARB in the implementation of that target. This credibility deficit was confirmed by the subjective test of the BER's inflation survey domestically. By implication, there might be scope for institutional policy reform with the goal of improving the credibility of the SARB's

target. To investigate this possibility Masson, Savastano and Sharma's (1997) test for the comprehensiveness of the SARB's inflation target will be used here.

Table 7.3 shows the subjective scoring system for Masson et al.'s (1997) test. They calibrated the test to give a score of 100% for a comprehensive inflation targeting regime in a developed country. The "SARB" and "reformed SARB" scores reflect the judgement of the author and was introduced in du Plessis (2002a), where the SARB score rates the existing inflation targeting regime and the "reformed SARB" score reflects that policy changes discussed below.

*Table 7.3* *Comprehensiveness test for the SARB's inflation target*

| Question | Question Weight[a] | Scores | |
|---|---|---|---|
| | | SARB Score | Reformed Score |
| *Q1 Monetary Policy objectives* | | | |
| Authorities' priorities/ranking | 1 | 2 | 2 |
| • Inflation target 1st: 2 | | | |
| • Inflation target 2nd: 1 | | | |
| • Unclear: 0 | | | |
| Priorities conveyed to public | 1 | 1 | 1 |
| • Yes, clearly: 1 | | | |
| • No/ nor clearly: 0 | | | |
| *Q2 Forecasting and assessment* | | | |
| Model based inflation forecasts | 2 | 1[328] | 2 |
| • Yes, forecast released: 2 | | | |
| • Yes, forecast not released: 1 | | | |
| Assessment of monetary policy stance conveyed to public: | 1 | 1[329] | 2 |
| • Yes, clear & forward looking: 2 | | | |
| • Yes, clear & backward looking: 1 | | | |
| • No/ unclear/ infrequently | | | |
| *Q3 Policy instruments and conflicts* | | | |

[328] The SARB released a fan chart that summarises the probability distribution of its inflation forecast. However, the forecast is both numerically and conceptually vague as the underlying model and the conditioning factors for this conditional forecast are not released.

[329] The MPC gives a clear explanation of past monetary policy decisions and an assessment of the prevailing monetary conditions in various forms, including the inflation report and press conferences. However, due to the communication shortcomings of the SARB's regime, the Bank has often used a backward-looking interpretation of the regime(see chapter 5).

| Question | Question Weight | Scores | |
|---|---|---|---|
| | | SARB Score | Reformed Score |
| Full impact of monetary policy: | 1 | 2 | 2 |
| • Model based estimate: 2 | | | |
| • Arbitrary estimate: 1 | | | |
| • No estimate: 0 | | | |
| Policy conflicts and resolution: | 2 | 1 | 1 |
| • Inflation target normally prevails: 1 | | | |
| • Inflation target rarely prevails: 0 | | | |
| *Q4 Market based inflation forecasts* | | | |
| Exist? | 2 | 1 | 1 |
| • Yes, many: 2 | | | |
| • Some: 1 | | | |
| • No: 0 | | | |
| Use by the public and/or staff | 1 | 2 | 2 |
| • By both: 2 | | | |
| • By staff: 1 | | | |
| • Nor used: 0 | | | |
| *Q5 Quantitative inflation targets* | | | |
| Exist? Since when? | 2 | 2 | 2 |
| • Yes, for more than 2 years: 2 | | | |
| • Yes, for less than 2 years: 1 | | | |
| • No: 0 | | | |
| Features of inflation target: | 1 | 0[330] | 3 |
| • Horizon longer than 1 yr: 3 | | | |
| • 1yr horizon, in line with control lag: 2 | | | |
| • 1yr horizon, at odds with control lag: 1 | | | |
| • Not applicable: 0 | | | |
| Latest inflation target: | 1 | 1 | 1 |
| • Less than 15%: 1 | | | |
| • More than 15%: 0 | | | |

[330] The SARB's inflation target is tied to calendar years, but in the SARB's response to Schmidt-Hebbel and Tapia's institutional design survey the Bank claimed that using its own forecasting model 50% of the ultimate impact on inflation of a change in the stance of policy is only attained at a horizon of 4 to 6 quarters (Schmidt-Hebbel and Tapia, 2002: Table 5). This point is taken up below as a central criticism of the present target design.

| Question | Question Weight | Scores | |
|---|---|---|---|
| | | SARB Score | Reformed Score |
| Sanctions for breaching inflation target:<br>• Formal/informal sanctions: 1<br>No formal/informal sanctions: 0 | 1 | 0[331] | 1 |
| *Record of compliance* | | | |
| Compliance with inflation target<br>• Good: 2<br>• Fair: 1<br>• Poor: 0 | 2 | 1 | 1 |
| Overall score | Unweighted | 15 | 21 |
| | Weighted | 21 | 28 |
| Percent of IT Benchmark | Unweighted | 65% | 91% |
| | Weighted | 66% | 88% |
| IT Benchmark | Unweighted max | | 23 |
| | Weighted max | | 32 |

a: The unweighted score attaches equal weight to all the questions. The weighted score doubles the weight of five key questions.

On Masson et al.'s (1997) test for the comprehensiveness of an inflation targeting regime, the SARB currently scores about 66%. In other words, the present design of monetary policy falls short by about a third relative to a benchmark comprehensive inflation targeting regime[332]. In the ensuing discussion we will see that this deficit is due mainly to shortcomings in the transparency and the ultimate control over monetary policy. But before these issues are pursued further, the next sub-section provides a brief introduction to the use of principal-agent models in monetary policy analysis as the institutional analysis will draw on that model at various points.

331 To date there has not been any sanction on the SARB, the governor or the MPC for failing to hit the target. Indeed, there is substantive uncertainty about the "escape clause" that was originally a part of policy design, but seems to have fallen into disuse (Joffe, 2003). Governor Mboweni's preference for eliminating the escape clause from the institutional framework supporting the SARB's target was discussed in chapter 5.

332 This test is an exploratory device. The size of this gap is entirely conventional and the single figure score is simply an indication that reform of the institutional framework may be necessary (and it is the individual question scores which indicate areas where attention is required).

## 7.2 PRINCIPAL AGENT MODELS OF THE MONETARY POLICY PROCESS

Since Kydland and Prescott (1977) economists have been careful not to blame undesirable monetary policy outcomes, as a matter of course, on the incompetence or malevolence of the policymakers. Accordingly, the monetary policy problem has become institutionalised to a great extent: that is to say, the focus has shifted to the incentives facing central bankers and the long term effects of monetary policy, as opposed to overemphasising the problems of the day. When the longer term gains in importance, institutional considerations tend to dominate, as Popper argued:

> "There is another distinction within the field of political problems corresponding to that between persons and institutions. It is the one between the problems of the day and the problems of the future. While the problems of the day are largely personal, the building of the future must necessarily be institutional" (Popper, 1966a: 127).

As economists have clearly stepped away from the notion that unwanted social outcomes must, of necessity, reflect incompetence or malevolence, so too have they stepped away from the romantic notion that rules are invariably obeyed, that public policy will consistently achieve its ends, and that policy makers and other public officials serve some loosely defined common good. Accordingly economists, like Gary Becker (for example, Becker, 1965), have broadened the scope of economic analysis to analyse the incentives and disincentives for a very broad class of "crimes", including poor policymaking. The public choice literature has extended this approach forcefully and demonstrated the importance of analysing the institutions of policymaking, including those of monetary policy.

Institutional economics has helped monetary theorists to analyse and design institutions for monetary policy that encourage good behaviour by the central bank, while removing the incentives for policy mistakes which lurk behind the time inconsistencies and other inflationary biases described in the chapters 3 and 4[333] (Brash, 1996).

Principal agent models provide convenient scaffolding for considering questions of institutional design in monetary policy, as in many other fields of public policy. A principal-agent problem

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[333] This is a positive version of Popper's (1966a) negative argument that political philosophy should be concerned with designing institutions that *prevent* malevolent or incompetent policy makers from causing too much harm. The positive counterpart is the challenge of designing institutions to *encourage* good policy decisions.

arises when one party (called the principal) is interested in certain "good" behaviour by another party (called the agent), but the principal either has insufficient information or insufficient means to ensure the desired behaviour by the agent. These problems typically occur when the agent's goal is unclear, unobservable or otherwise hard or expensive to monitor, or where the principal and agent have different goals. In such circumstances, the incentives defined by the contract between the principal and agent can have a material effect on behaviour of the agent and hence the efficiency of the outcome from the principal's perspective (Stiglitz, 1987).

The contractarian approach to analysing monetary policy institutions re-interprets the monetary policy problem as one where society uses a (often implicit) contract to provide optimal incentives for its monetary authorities, usually with the government as intermediary[334,335]. If an actual contract exists then the parties to it will be the government and the central bank. However, in the contractarian approach to solving the paradox of power the contract (implicit or explicit) that establishes a central government, associates society in the explicit contracts entered into by government (their political agents). For the case at hand, King observed that "if the loss function of central bankers is not defined over the same arguments as enters the loss function of Parliament or public, then there is a standard principal-agent problem...the key, therefore, is to align the personal incentives facing central bankers with the objectives implied by the optimal policy reaction function" (King, M.A., 1997: 94). This chapter returns to the principal-agent model at various points to paint a progressively more detailed picture of the issues these models are equipped to analyse.

Alan Blinder (1997b; 1998) has argued that contra to the elaborate institutional design analysed below, monetary authorities could generate low inflation without undue output fluctuations by following a simply "just do it" strategy[336]. And the favourable outcome under chairpersons Greenspan and Volcker in the USA (who would ostensibly have followed a "just do it" strategy) is the main evidence supporting this claim. The argument can be disputed on two grounds

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334 Carl Walsh (for example: Walsh, 1995) contributed seminal applications of the principal-agent model to the analysis of monetary policy.

335 The explicit consideration of the incentive structure facing central banks followed from the contracting approach to monetary analysis pioneered by Persson and Tabellini (1993). Some of the major issues of institutional design in monetary policy that have featured in a burgeoning literature include: the political independence of the monetary authority, the goal of monetary policy, the appointment and tenure of the policy-making committee of the Central Bank; the accountability of the central bank to the public at large; requirements for openness and reporting by the central bank (Walsh, 1995; 1998).

336 That is to say, a strategy of taking a reasonable discretionary decision in every circumstance.

though: firstly, that the Federal Reserve Board followed an implicit policy rule in this era, and not a 'just do it' strategy (see, for example: Taylor, 1993).

Secondly, and more fundamentally, the Blinder argument disregards a fundamental insight of the institutional literature, i.e. that the benign decisions of any particular policy maker, or succession of policy makers offer no confidence that the next policy maker would continue in similar vein; in the words of Goodfriend (2003 20-21): "if price stability is to be sustained, however, the operating procedures of the Greenspan Federal Reserve Board must be credibly transferred to its successor." Indeed, it is the possibility of ignorant or malevolent public officials, as well as the problem of succession to competent policy makers, which raises the importance of institutional design in the first place[337].

The successful transmission of credibility to succeeding monetary policy regimes is not a leadership question alone (or even chiefly), but a question of understanding the process of inflation, of the role for monetary policy in mitigating it, and of the creation of incentives for the private and public sectors to work to that end (Goodfriend, 2003). Accordingly, the evaluation of inflation targeting as an institution in the next section emphasises the incentive structure facing central bankers, and public's ability to monitor their behaviour, instead of emphasising leadership or other personal aspects in the process of monetary policy.

## 7.3 INSTITUTIONAL EVALUATION OF INFLATION TARGETING

Inflation targeting has become associated with an extensive set of institutional arrangements including: a clear mandate to pursue the target as an overriding goal for monetary policy, instrument independence to set the stance of monetary policy, extensive transparency measures to ensure accountability, a forward looking targeting rule and so on (Masson, Savastano and Sharma, 1998). Indeed, adherence to these institutional features have become an important way of measuring the credibility of an inflation targeting regime (Svensson, 2002a).

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337 As Popper argued in the *Open Society*: "*All long term politics are institutional*... the principle of leadership does not replace institutional problems by problems of personnel, it only creates new institutional problems...it even burdens the institutions with a task which goes beyond what can be reasonably demanded from a mere institution, namely, with *the task of selecting future leaders*" (Popper, 1966a: 126, emphasis in the original).

This section employs the criteria for efficient monetary policy institutions derived in chapter 1 to evaluate the institutions typically associated with inflation targeting[338]. At the same time, the consistency of inflation targeting with the IMF's *Code of Good Practices on Transparency in Monetary and Financial Policies*[339] (see, IMF, 2000a; 2000b) ("IMF code of conduct", hereafter) is tested as a practical complement to the theoretical evaluation based on the institutional criteria. Indeed the IMF argues that adherence to this code of conduct on transparency is especially important for countries that have adopted inflation targeting on account of the monitoring problem of inflation targeting (as discussed in chapter 5) (IMF, 2000b: Box 2-1).

### *7.3.1 Stability and predictability*

Inflation targeting is consistent with this criterion at two levels: firstly, the general targeting rule for flexible inflation forecast targeting typically contains low inflation and output stability as the ultimate goals for monetary policy. Secondly the implementation of monetary policy under inflation targeting is explicitly designed to increase the transparency and predictability of monetary policy decisions and by extension contribute to the stability of the economy.

The principal-agent, or contractarian approach to the monetary policy approach emphasises the flow of information between society and its policymakers[340], and this is especially relevant for the second level at which inflation targeting contributes to predictability and stability, that is the conduct of monetary policy. According to the contractarian approach, monetary policy is analysed as if society uses a contract to dictate the goals for its policymakers and the tools to be used to that end, as well as to provide the incentive for policymakers to implement policy accordingly. Policymakers, in turn, communicate with the public to demonstrate their compliance with the policy contract, as well as explain how the abstract contract should be understood in the unfolding historical setting faced by policymakers. In the case of inflation targeting, for example,

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338 Amongst these, central bank independence has been amongst the most widely discussed of the institutional issues, but a full treatment thereof is postponed until the chapters 8 and 9 where both the economics and politics of the issue are considered.

339 The IMF's Interim Monetary and Financial Committee drafted a code of good practices for monetary and financial authorities based on contributions by central banks, treasury departments, academics and other research institutes. This code was adopted on the 26th of September 1999 and all member countries were urged to incorporate the guidelines in their monetary and financial policy frameworks.

340 Inflation targeting is an example of such a contractarian approach.

the central bank is required to explain what 'sticking to the target' means in any concrete situation, as well as how the present stance of policy is consistent with that interpretation.

The trend towards greater independence for monetary policy noted in chapter 3 is a second – and political - reason for the rising emphasis on effective communication by monetary authorities. The next chapter explores the 'democratic deficit' of independent central banks, but it is appropriate at this point to mention the importance of transparency in the monetary policy process as an essential component to ensure the accountability of the monetary authorities (Amato, et al., 2002). Transparency in turn, requires effective communication on the monetary authority's understanding of economic developments and of their implications for monetary policy, given the mandate granted to the independent central bank.

A third (and this time technical) reason for the increasing emphasis on communication and transparency follows from the emphasis on expectations and forward-looking behaviour in modern macroeconomics[341]. Financial markets are typically very liquid and forward looking as market participants attempt to reflect news and the likely unfolding of the economy in asset prices.

As John Taylor (for example Taylor, 1979) has long since argued, this leaves policy makers with either of two options: to model how other role-players learn about unannounced plans, or to announce policy plans publicly to allow role-players to incorporate them in their forward-looking behaviour. Whereas Taylor's argument for the second may have been somewhat controversial in the late seventies, it has since become conventional. Indeed, the IMF's code of conduct signifies that conventionality. The preamble to clause 2.3 of the IMF's code of conduct argues as follows:

> "The effectiveness of monetary policy can be strengthened if the changes in policy instruments are publicly announced and explained in a timely manner ... Explaining policy changes helps to shape expectations and thus makes policy more effective, and it also promotes public accountability for policy choices" (IMF, 2000b: clause 2.3, preamble).

Unanticipated changes in the stance of monetary policy are a source of news, and by that fact, volatility on the financial markets. Additionally, the stance of monetary policy carries information about the Bank's judgement of likely future developments in the economy. An explicit and

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[341] Including the government and the decision makers who respond to policy and whose policy expectations form part of rational policy design.

transparent communications strategy at the central bank is, therefore, both an instrument to inform market expectations of the reasons for monetary policy decisions, as well as a strategy to remove the shock of unexpected monetary policy decisions on asset markets.

The highly successful institutional reform of monetary policy in New Zealand over the last 15 years[342] has partly been built on the vision that the Reserve Bank of New Zealand (RBNZ) should cease to be in independent source of news. The long time Governor of the BNNZ Donald Brash formulated that vision as follows:

> "One point of philosophy has remained constant through this evolution: we have little, if any, informational advantage over the market. Market participants know what our objectives are, and they know how we think monetary conditions affect inflation...the fact that financial markets very largely implement policy for us is demonstrative of the power of that transparency" (Brash, 1996: 130, 138)

Modern central banks typically use a very short-term interest rate to implement that stance of monetary policy, even though monetary policy does not greatly affect the economy through this interest rate directly. Rather, it is the impact of short term interest rates – and, especially, the expectation of future short term interest rates – on asset prices like those of bonds (and therefore longer term interest rates), equities and the exchange rate that form the main channels for the transmission of monetary policy to the economy (Blinder, 1998).

Since the transmission from policy interest rates (usually very short term rates) to the long term interest rates that are relevant for aggregate expenditure is long and variable, monetary policy stands to gain in efficiency if the bond market can move in anticipation of monetary policy decisions, as per Brash's (1996) description above.

This argument from the transmission mechanism to the need for using a communications strategy to the management expectations advanced by, for example Amato, Morris and Shin (2002), matches the argument for rule-like policy in chapter 4. It is no surprise, therefore, to find that those central banks which have adopted rule-like monetary policy such as inflation targeting have also championed unprecedented and sophisticated communications strategies. Such strategies typically include: inflation reports, extensive explanations of monetary policy decisions

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[342] During this period New Zealand moved from being one of the industrialised countries with the highest inflation to the upper half of that group (Sherwin, 1999).

in speeches, press conferences and policy notices (Amato, et al., 2002). Additionally, the minutes of the policy meetings are often published (though, usually with a delay).

Technical aspects of monetary policy, such as the Bank's understanding of the transmission mechanism embodied in the inflation forecasting model is sometimes published in technical papers. Table 5.6 also summarised the communications strategy used by the various inflation targeting central banks, but a few outstanding features of the general experience are highlighted in the following few paragraphs.

Table 7.4 summarises key aspects of the communications strategies - as listed in table 5.6 above - adopted by 18 inflation-targeting Central Banks (split into 9 developed[343] and 9 developing countries[344]).

*Table 7.4* *Communications strategies by inflation-targeting central banks*

| Strategy | Proportion amongst developed countries | Proportion amongst developing countries | Total proportion |
|---|---|---|---|
| Inflation report | 100% | 100% | 100% |
| Minutes of MPC meetings | 33% | 44% | 39% |
| Numeric inflation forecasts | 78% | 44% | 61% |
| Econometric models | 22% | 11% | 17% |

Source: Various data sources as listed documented at table 5.6

There is an asymmetry in the "transparency mechanisms" adopted by developed and developing countries. While the developed countries are more confident in publishing numerical inflation forecasts, for example, and to a lesser extent the models underlying those forecasts, the developing countries rely on non-numerical information (like the minutes of policy meetings) to a greater extent. This asymmetry may be due to the structural features of developing country macroeconomics, i.e. the technical difficulty in forecasting inflation in a developing country.

Inflation forecasting is plagued by pervasive uncertainty, and the requirements for policy analysis using econometric models are very restrictive. There is no guarantee that a suitable model for

[343] Australia, Canada, Iceland, Israel, Korea, New Zealand, Norway, Sweden, United Kingdom.

[344] Brazil, Chile, Czech Republic, Hungary, Colombia, Mexico, Poland, South Africa, Thailand.

inflation targeting may even exist for a particular economy at a particular time. This is not, however, an argument against the use of econometrics in monetary policymaking, it is an argument for humility in the necessary application of econometrics[345]. Happily, the experience of inflation targeting countries has been of a decline in forecast errors with respect to inflation. This seems to go in step with the decline in inflation expectations that has occurred gradually in these countries (Mishkin and Schmidt-Hebbel, 2001).

Publishing the minutes of monetary policy committee meetings remains controversial, and the SARB has not yet decided to join some of the more transparent inflation targeting central banks in this regard. Indeed, the SARB does not publish the voting record of the MPC members[346]. One danger of publishing the minutes is that revealing a sharp disagreement between the members of the policy committee could either destabilise markets or undermine the credibility of the Bank (Amato, et al., 2002). This danger is considered in sections 7.3.1.1.5 and 7.3.1.1.6 below.

A second danger is that a 'cult of personalities' could emerge around the members of the MPC, with market-participants speculating about the likely votes of individual members rather than analysing the fundamentals to which the committee is supposed to respond. This is a double-edged sword: whereas this cult of personalities could interfere with the process of policy making, it could also function as the surest guarantee of substantive independence for the members of the MPC (Buiter, 1998) and in that way support the critical discussion of policy relevant issues at MPC meetings (this sociological argument for extending transparency to the level of individual MPC members is considered at greater length in section 7.3.3 below).

Saying that transparency in policy making, especially monetary policy, has become conventional is not yet saying very much though. At the most general level, transparency indicates the "type" of central bank, that is whether the monetary authorities are committed to fighting inflation or

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345 As a former governor of the Federal Reserve Board Alan Blinder (1997b: 8) observed, "...there are two basic ways to obtain quantitative information about the economy: you can study the econometric evidence or you can ask your uncle. To me the choice was easy despite all the well-known pitfalls of time-series econometrics... we should be careful not to give aid and comfort to the supporters of uncle-asking, which is really a subterfuge for escaping the discipline of the data and allowing your priors to run rampant."

346 The present Reserve Bank Act requires that the Governor of the SARB take responsibility for the stance of monetary policy, and so does not allow scope for formal voting at MPC meetings. Under the present Reserve Bank Act, only the Governor and Deputy Governors can vote on the stance of monetary policy, which precludes voting at the MPC *de jure*. However, informal voting does take place, though the record is neither kept nor published (Aron and Muellbauer, 2000).

not[347] (for example: Walsh, 1999). This general level of transparency is intimately associated with the credibility of the central bank and, consequently, central banks have gone to great lengths to communicate their anti-inflation credentials.

Whereas Posen (2002) may be correct to observe that this is of little consequence in developed countries like the USA, where the credibility of the monetary authorities are (practically) unquestioned, it is not correct to generalise since many developing countries have struggled precisely with building credibility for the anti-inflation credentials of their monetary authorities. And not just developing countries but developed countries like New Zealand have, since the late eighties, also employed explicit measures to communicate information about its type of monetary policy. For countries with unhappy inflation histories transparency, at the general level, is part of an institutional solution to the problem of moving to a more credible low-inflation environment. That is why the first clause in the IMF's code of conduct is concerned with transparency at the general level[348].

But Posen (2002) is correct to identify an additional layer of transparency, concerned with narrower institutional issues, and which are relevant to the implementation and continued success of monetary policy in developed and developing countries alike. Transparency at this level is about improving co-ordination, not about signalling the "type" of policymaker. This second level of transparency has been the focus of substantial empirical research in recent years (for example: Kuttner and Posen, 1998) and is also reflected in the IMF's code of conduct where clause 2 is explicitly about three aspects of this second level of transparency.

Firstly, clause 2.1 of the IMF's code is concerned with transparency of the goals, instruments and targets of monetary policy: For example, the mechanism for adjusting policy instruments, the composition, structure and function of the policy making body within the central bank, and the meeting schedule requires clarification. Secondly, clause 2.3 deepens the transparency by addressing rules according to which the stance of policy is determined, arguing for example that

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[347] Walsh (1999) shows that an explicit inflation target can help the central bank to communicate its anti-inflation commitment o the public, in situations where a similar claim by the central bank would have lacked credibility. One (practically important) situation of this kind is where the central bank has private information about the economy. In this situation the central bank has the incentive for time-inconsistent behaviour in the manner described in chapter 3. Committing to an explicit target ameliorates the credibility problem faced by central banks under such circumstances.

[348] Clause 1.1 recommends that the ultimate objectives of policy be described in legislation and then communicated transparently to the public (IMF, 2000b).

the economic factors affecting the stance of policy be explained[349]. In terms of rules-based policy this is a requirement for transparency about the general and specific targeting rules. Thirdly, transparency in these dimensions requires what the IMF (2000b: clause 2.3) calls a "public information service" (with a publication programme, speeches by senior Bank officials, and other public forums) to explain monetary policy to the public, financial markets, and other policy makers.

#### 7.3.1.1 Channels whereby transparency affects monetary policy

Posen (2002) identified six channels through which this second level transparency could have an effect on the nature and effect of monetary policy, two of which are positive, two neutral and two that might undermine monetary policy.

*Positive channels*

Firstly, increased transparency could reassure the public about short-term conditions to which the Bank is responding. Secondly, the increased transparency could make it easier for the public to co-ordinate decentralised decisions as the reaction of the Bank becomes more clearly understood.

*Neutral channels*

Thirdly, the public might come to understand the contingent nature of policymaking and demand more knowledge of the contingent rules used at the Bank[350]. Fourthly, it is possible that the public could judge the increased transparency irrelevant as long as the Bank seems to be as responsive to shocks as before.

*Possibly negative channels*

Fifthly, monetary authorities could be subjected to political pressure when they fail to meet transparent targets. Finally, the public could be concerned that the Bank's focus on pre-

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349 This requirement implies not only that the list of conditioning variables be communicated, but also the form in which they enter the targeting rule as well as the assumptions made about their likely future paths. In other words, it is a call for transparency about the central bank's forecasting model as well as the conditioning factors that have been used to determine the stance of policy.

350 Increased public interest in the operational aspects of monetary policy could be beneficial if it allows more accurate expectations to be formed, but harmful if the (bureaucratic) cost of the increased transparency rises.

announced targets risks diverting attention away from legitimate rival goals for monetary policy[351].

The combined effect of these channels is ambiguous, though the empirical and theoretical literature should be of some help to judge the desirability of increased operational transparency at the central bank. To that end a brief theoretical discussion is given of each channel and is complemented with results from the relevant empirical literature.

*7.3.1.1.1 Reassuring view*

The first channel of influence for transparency on the conduct and impact of monetary policy is what Posen (2002) called the "reassuring view," and is based on King's (1997) theory of the "optimal state contingent rule." Accordingly, monetary authorities gain greater flexibility through increased transparency, by demonstrating that exercising short run discretion relative to the long run policy rule is neither inconsistent with the targeting rule, nor a softening of the commitment to a general targeting rule. The authorities hope to gain such flexibility by being transparent about their general targeting rule (for example, adopting an explicit inflation target) and by using speeches and publications to offer regular explanations for the stance of monetary policy that follows from the specific targeting rule[352].

To evaluate the empirical relevance of the "optimal state contingent rule" theory the following testable hypothesis should be examined: inflation persistence should decrease with an increase in transparency (on the premise that the latter represents a move towards the optimal state contingent rule). This hypothesis is supported by a broad class of empirical studies investigating the link between adopting explicit targets for monetary policy and the persistence of inflation. Vinhas de Souza (2002), for example, found that adopting an explicit target for monetary policy had a significant effect in lowering inflation expectations across a large set of countries; an effect he could not replicate for any other feature of the monetary policy framework.

Kuttner and Posen (1998) examined the bond market responses to inflationary shocks in industrialised countries and found that the adoption of explicit inflation targets led to increased

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[351] Indeed, for critics of the SARB, like Power (2002; 2003), it is almost axiomatic that inflation targeting diverts the attention of policymakers from pressing concerns in a developing country such as fighting unemployment.

[352] The adoption of and explanations accompanying the use of money growth targets by the Bundesbank, as interpreted by Bernanke et al. (1999), fits the pattern of using transparency to gain flexibility through re-assuring the public.

flexibility of the monetary authorities, observed by the greater tendency for bond yields to fall after an adverse shock. This is consistent with the earlier evidence by Buttiglione, del Giovane and Tristani (1996) for OECD countries that short term interest rate rises are followed by declining long term bond yields in countries with low inflation historically (and therefore credible central banks) while the same short term interest rate shocks led to higher long term yields in high inflation countries.

*7.3.1.1.2 Better co-ordination*

As mentioned in chapter 4, the impact of monetary policy on the long-term interest rates (determined on the bond market) is one of the main channels of monetary transmission. It follows that monetary policy would be transmitted more efficiently if the link between short and longer term interest rates could be made more stable and predictable through changes in the institutional design of monetary policy. The improved co-ordination argument for transparency proceeds form this deduction and argues for the publication of forecasting models, conditional forecasts, and thorough explanations of how the models were used to generate the forecasts, to enable the bond markets to predict normal monetary policy developments with greater success.

The empirical evidence cited in Posen (2002) – including Kuttner (2001) and Poole, Rasche and Thornton (2002) – corroborates the better co-ordination hypothesis by demonstrating a significant link between detailed disclosure and discussion of monetary policy procedures and lower volatility and increased predictability for US Treasury Bill yields.

*7.3.1.1.3 Contingent view*

On the contingent view of transparency the credibility of the central bank is a function of the degree to which transparency is used to demonstrate the anti-inflation credentials of the policy committee. Whereas this view is clearly a derivative of the general arguments for transparency mentioned above, it contains second level transparency recommendations such as publishing the mandate and voting record of MPC members as well as the minutes of policy meetings (Posen, 2002).

Posen (2002) associates this view of transparency with the literature[353] that investigates whether higher output volatility is the associated cost when a central bank uses increased transparency to build anti-inflation credibility. This hypothesis is undermined by the extensive literature rejecting the latter hypothesis is, for example: Debelle and Fischer (1994), Blinder (1998) and Posen (1998a).

However, there is more to transparency measures such as publishing minutes and voting patters than signalling the inflation aversion of the policy committee. Indeed these transparency measures are often more closely associated with political economy arguments about the accountability of monetary policy makers. Chapter 8 provides a detailed analysis of the delicate balance of an operationally independent central bank (where the stance of policy is determined by unelected experts) with a democratic dispensation where the political process sets the priorities for economic policy.

*7.3.1.1.4 Irrelevance*

Ben Friedman (for example, Friedman, B.M., 2002) is a leading academic exponent of the view that transparency is at best a second order issue where the credibility of monetary authorities are concerned. Words matter, but actions matter much more, according to the irrelevance view of transparency[354]. But Ben Friedman (2002) has recently advanced a stronger, and far more contentious, hypothesis according to which the language of inflation targeting may be instrumental in removing output concerns not just from the text of the policy debate, but from the minds of policymakers, too. Ben Friedman's (2002: 7) argument is that in "...at least in some quarters ...[there may be] the hope that of the explicit discussion if the central bank's policy is carried out entirely in terms of an optimal inflation trajectory, concerns for real outcomes may somehow atrophy or even disappear from consideration altogether."

The Nobel Laureate Joseph Stiglitz recently constructed a bewildering argument not unlike Ben Friedman's that is critical of the pursuit of low inflation by an independent central bank; a policy direction he found both new and mistaken, not just economically, but politically, too[355].

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353 For example Chortareas, Stasavage and Sterne (2002).

354 The respondents in Blinder's (1999) survey of central bankers and monetary economists also thought that actions were more important than transparency mechanisms, though they did not regard the latter as irrelevant.

355 Stiglitz (2003: 11) dismissed this policy direction as a "mantra", which "...like so many other policy maxims...has been repeated often enough that it has come to be believed."

"...controlling inflation is not an end in itself;" Stiglitz (2003: 11) argued, "...it is merely a means of achieving faster, more stable growth, with lower unemployment;" to which he added the claim that the "...ruthless pursuit of price stability actually harms economic growth and wellbeing." And he has a theory at hand to explain the adoption of a policy both ignorant and perverse, or rather, his argument feeds on an older prejudice against the gnomes of Zurich, the "technocrats and financial market players who benefit from this institutional arrangement."

Stiglitz (2003) claimed that these technocrats, acting on behalf of the financial market players, have convinced many countries that they should "treat monetary policy as a technical matter that should be put above politics." Their method was two-fold: "The virtues of the new regime are first praised, but then they [citizens in developing countries] are told the macroeconomic policy decisions about which they are most are too important to be left to democratic processes. Citizens are warned against populism (meaning the will of the people?)" (Stiglitz, 2003: 11).

Leaving aside the logical problems of Stiglitz's broadside against the direction of modern central banking, there are two substantive issues in his argument: firstly, there is the claim that inflation is not socially undesirable as such, and that pursuit of low inflation benefits the financial market players and may harm the poor. The first four chapters of this dissertation argued in opposition to, and presented evidence against these claims. But Stiglitz (2003) argues something more, i.e. that "because there are trade-offs, these [monetary policy] decisions can only be made as part of the political process." Ironically, Stiglitz is in league with Milton Friedman when he argues for a politicised monetary policy; only Friedman (1982) argued for using the ballot-box as the critical instrument whereby a transparent central bank would be judged, politically[356].

A number of objections could be raised to the irrelevance hypothesis in its milder and more extreme variants: First, the asymmetric history (mentioned in chapter three, and discussed more extensively in chapter 6) whereby an increasing number of central banks have adopted explicit targets over the last decade and more, whereas none have abandoned such targets. More broadly, there has been a tremendous shift towards adopting explicit nominal targets across developed and developing countries, and the IMF's code of conduct reflects this groundswell in support of increased transparency.

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[356] Chapters 8 and 9 consider the political economy of the central bank, demonstrating why modern central banks - especially those with inflation targets - have undergone, not the direct politicisation anticipated by Friedman or desired by Stiglitz, but institutional reform towards instrument independent but goal dependent monetary authorities. This modern trend substitutes a principal-agent solution for Friedman's (1982) direct political solution.

Chapter 2 introduced the concept of critical rationalism, on the basis of which certainty is a redundant concept in empirical science. The present popularity does not, therefore, settle the argument. The lack of counter evidence is something more, but does no more than support the tentative acceptance of the argument that central banks have undertaken the institutionally expensive steps towards increased transparency because transparency pays in the event, as much as it does in theory.

Secondly, the empirical literature, for example Kuttner and Posen (2001), has established a significant association between adopting an explicit target for monetary policy and lower inflation. Finally, if Ben Friedman is to avoid following Stiglitz into conspiracy theories he has to accept that academics, the public and politicians are able to judge the actions of the central bank over time[357]. If this minimum of rationality is admitted it would be impossible for a central bank to use the language of monetary policy to hide a contrary policy approach for long[358].

*7.3.1.1.5 Annoyance*

In contrast with the irrelevance view – where transparency was a second order issue at best – there is also an argument according to which transparency is positively harmful for monetary authorities, the weak form of which is called the annoyance hypothesis and the strong form of which is discussed below as the diverting hypothesis. According to the annoyance hypothesis increased transparency could either confuse the public or hand material to politicians with which to criticise and pressurise monetary authorities, or as Posen (2002: 15) summarises the argument: "...disclosure leads to confusion, which leads to politicisation, which in turn annoys optimising central banks into overreacting to short-term pressures and targets."

This hypothesis is the background to the "mystique" which Paul Volcker recommended so earnestly in the exchange with Mervyn King recalled in the opening paragraph of chapter 4.

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357 Stiglitz is apparently untroubled by the intellectual problems of his conspiracy theories. He has employed them in his criticism of the IMF (Stiglitz, 2002) as well the criticism of inflation targeting mentioned above. Yet, Stiglitz does not offer any reason for believing that his conspiracy theories are immune to the philosophical problems (for example, the absence of empirical content, the presumption of power at once so vast and subtle that history provides hardly any precedents) that undermine that entire approach to the social sciences, as per the arguments in Popper (1961; 1966b; 1992b) or Hayek (1984).

358 Karl Popper (for example: Popper, 1994) labelled this extreme version of the problem of scientific debate as the "myth of the framework." According to the extreme position, contextuality is so impenetrable that scientific propositions can hardly be evaluated against data. Ben Friedman's hypothesis requires a similarly impenetrable barrier between the central bank and the public for the monetary authorities to implement an undesirable and undesired monetary policy regime in the long run.

Locally, van den Heever (2001) has also cautioned that increasing transparency – in the form of published forecasts – could undermine credibility should these forecasts turn out to have been wrong (even for events outside the SARB's control).

The annoyance hypothesis is not irrelevant, at least not in South Africa where President Mbeki recently used the media to pressurise the SARB's MPC into lowering interest rates with his comment: "We have no influence on the matter, but clearly cheaper money would be good for the economy" (quoted in Chalmers, 2003). This follows Finance Minister Manuel's earlier attempt to force the SARB's hand on using the escape clause (van Niekerk and Ensor, 2002).

Two arguments weigh against the annoyance hypothesis though: firstly, the very transparency that generates the opportunity for political interference also removes its sting. The increased transparency at the SARB is an efficient way of discovering how far the Minister and the President had overstepped their various roles. Public understanding of the targeting rule underlying inflation targeting as well as the balance of goal dependence and instrument independence at the SARB would have demonstrated the irrelevance (however annoying) of the President's comments. And it was the transparent explanation offered in the Monetary Policy Review of April 2003 (SARB, 2003) that disarmed the Minister's case for invoking the escape clause.

Secondly, it is difficult to reconcile the annoyance hypothesis with either the trend to greater transparency at central banks around the world, or the empirical literature (mentioned in chapters 3 and 6), which established a link between low inflation and adopting explicit targets. Arguing from revealed preference, the annoyance hypothesis (though adding to the cost of adopting a more transparent monetary policy institution) is evidently outweighed by the benefits thereof.

*7.3.1.1.6 Diverting*

The stronger version of the annoyance hypothesis states that increased transparency not only risks encouraging over-reaction by the monetary authorities, but positively locks in an erroneous bias, whereby the MPC either pursues low inflation at all costs, or adopts an inappropriately rigid rule (Posen, 2002). This is a view that has struck a popular cord with the most vocal opponents of inflation targeting, in South Africa, as elsewhere (Petros, 2002; Power, 2003)[359].

[359] And on occasion even the editorial comment in the Business Day (for example: Business Day, 2002).

In his influential discussion of contingent rules in modern central banking King (1997) introduced the term "inflation nutter" to describe a central banker who attached zero weight to policy concerns other than inflation in the general policy rule. He also emphasised that there is no evidence of any real world inflation nutters in charge of central banks, a point also emphasised by Blinder (1998) and Svensson (1999b). Instead, Svensson introduced the term "flexible inflation targeting" to reflect the incorporation of other concerns (especially the output gap) in the general policy rule of inflation targeting central banks. Flexible inflation targeting corresponds to Mboweni's (1999: 403) earlier principle that "...it is important that the public does not get the impression that the central bank is dogmatic about the containment of inflation and does not care about other critical issues of importance to the economy."

An altogether different version of the annoyance dissertation concerns the potentially harmful impact of the opinions of monetary policy makers on issues, such as the appropriate level for the equity market or the exchange rate, which are not the main field of expertise of the Bank, but over which the Bank could exercise disproportionate and inefficient influence[360]. Central bankers have long been wary of the dangers posed by such self-fulfilling prophecies. Indeed, this is an instance of a more general problem with public information, that is: public information is highly informative about fundamental developments in the economy, but is also a focus for the beliefs of decision makers in the economy (Amato, et al., 2002).

This last feature could undermine the ability of the Bank to extract information from private decisions. One (formerly popular) way of avoiding the risk has been to minimise transparency, that is the "mystique" mentioned at the start of chapter 4. Increasingly though, central bankers are abandoning mystique for transparency, but with the latter taking shape in an institutional framework that facilitates efficient communication. Inflation targeting seems to provide one such an institutional framework. Another is the form of money growth targeting implemented with considerable success at the Bundesbank and the Swiss National Bank during the eighties and nineties (Bernanke, et al., 1999).

There is as yet little empirical support for the strong form of the annoyance hypothesis. In a series of papers Kuttner and Posen (1998; 2000; 2001) examined the issue from various angles

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[360] Market volatility caused by mistaken, even if well-intentioned, central bank opinions is inefficient.

using time series techniques, before-and-after comparisons and panel data studies, but none of these suggested that inflation targeting central banks have either dropped, or even downgraded, the importance of the output gap in their contingent rule. Indeed, the inflation targeting central banks seems to have become more responsive to output shocks. And that has been the local experience, too, as per Woglom's (2003) recent estimation of pre- and post-inflation targeting policy rules which showed an increased sensitivity to the output gap in the SARB's contingent plan.

However, there is an additional non-empirical reason for rejecting the annoyance hypothesis in both strong and weak versions, that is: the problem of the paradox of power in monetary policy and the efficacy of a transparent but independent central bank as a solution. For example, the monetary policy rule can hardly be known and certain without extensive transparency with respect to both the rule and its implementation. It is at this point that seemingly political considerations like the substantive independence of the MPC members (and the role of published minutes, published votes and so on) enter the consideration[361]. A policy regime like inflation targeting requires complementary institutions to ensure transparency, in the absence of which targeting rule's long-term credibility could be undermined as well as its ability to improve the stability and predictability of the economic environment.

### *7.3.2 Incentive compatibility*

The evolution from the Cukierman and Meltzer (1986) definition of credibility to Fischer's (1995b) definition demonstrated the increasingly explicit attention given to incentive compatibility in the monetary policy (see chapter 5). Since incentive compatibility is a central feature of efficient institutional design it is no surprise that potential dynamic inconsistency and the consequent problem of a credible commitment to a nominal anchor are central to the contemporary debate on the institutional design for monetary policy. Indeed, for Stanley Fischer (1995b) the debilitating effect of incentives for contradictory actions on credibility commitments is at the heart of the study of both modern central banking and monetary economics.

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[361] Indeed they are of such importance for the long-term credibility of a monetary policy regime that chapters 8 and 9 deal exclusively with the political economy of resolving the paradox of power in monetary policy.

As per the discussion in chapter 3, there are a number of potential solutions to the dynamic inconsistency problem, including: reputation building, legislation to prevent cheating, conservative policymakers that do not suffer the temptation to cheat, and the adoption of a policy rule as a credible commitment to the *ex ante* optimal policy (King, M.A., 1997). All of these solutions can be analysed using principal-agent models of the monetary policy process.

As was mentioned above, principal-agent models are designed to investigate whether the design of institutions resolves potential dynamic inconsistencies, as these models emphasise the need to design an agreement between the principal and agent in such a way that it is in the interest of the agent to produce the desired outcome[362] (King, M.A., 1997). In Stanley Fischer's influential analysis of the principle-agent approach to central banking he argued that "...in a well-defined sense, the central-banker in the principal-agent framework is held *accountable* for the outcome of monetary policy, in that there are definite consequences of failing to achieve well-defined goals" (Fischer, 1995a: 202, emphasis in the original).

Before considering whether principal-agent models can demonstrate the efficiency of inflation targeting as a monetary policy regime, a very brief aside is needed on different concepts of central bank independence[363]. Goal independence occurs where the central bank has the scope to set the goals for monetary policy. Instrument independence refers to the unimpeded ability of the central bank to use the instruments of monetary policy given the goals of monetary policy[364] (Debelle and Fischer, 1994). Whereas it is possible for a central bank to have both goal and instrument independence, it is possible to have only instrument independence while the government sets the goal(s) of monetary policy[365] (Friedman, B.M., 2000).

Society is the principal, enforcing its wishes through the democratic political process. This principal defines the goal(s) for monetary policy to reflect the interests of society (Buiter, 1998).

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362 As Blinder (1999: 4) observed cynically: "...duplicity is to be expected unless truthfulness is in the central bank's self-interest."

363 These issues are considered at much greater length in the next chapter.

364 It is interesting to note that a central bank with a stark monetary policy rule like a currency board (or a strict money growth rule) has no instrument independence (1995a). Such stark rules do not so much solve the questions of institutional design for monetary policy; rather the questions are eliminated at a stroke, but at the cost of inflexibility.

365 This independence is not defined exclusively in opposition to the political process, but also for example to pressure from the financial markets. If a central bank was excessively concerned about market expectations of monetary policy, then the Bank could be drawn into a short-sighted policy decision. On this argument, financial markets are biased to short run decision making and the merit of long run policy commitment by the central bank is precisely to insulate monetary policy from this overly short run perspective (Blinder, 1997b).

Typically these goals will be summarised in the nominal anchor for the system, or in the general targeting rule (where applicable[366]). With the goals of principal and agent aligned, the agent is then given instrument independence to pursue the goals[367]. However, the agent is held accountable for the outcome of monetary policy relative to the goals set by the principal. Indeed, the need for accountability rises to the extent that responsibility is devolved to the central bank (Freedman, 1993).

The principle-agent model allows the monetary economist to verify whether the policy framework has set clear goals for the central bank, that it has granted the Bank requisite power in the pursuit of those goals and that there are mechanisms to hold the Bank accountable for achieving the goals (Fischer, 1995a). There is a wide array of incentive-contracts which could be used to this end, including: the career prospects of the central banker[368], public embarrassment[369], public hearings[370] and so on. However, all of these incentive contracts require that the ultimate objectives of monetary policy be clearly described.

Though a "stark" rule solves the dynamic inconsistency problem, by providing a clear and inflexible goal for monetary policy, it is generally sub-optimal, since it does not allow policy to respond to the various shocks that impact on an economy (King, M.A., 1997). However, the contingent (or activist) rules introduced in chapter 4 also provide a clear description of policy goals and solve the dynamic inconsistency problem without preventing flexible responses to shocks (Blanchard and Fischer, 1989). In so far as inflation targeting is such a state-contingent rule, it fits the description of a rule-based solution to the dynamic inconsistency problem.

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366 An interesting result from Mishkin and Schmidt-Hebbel's (2001) empirical investigation into the factors that affect the adoption of inflation targeting is that goal independence at central banks shows an inverse association with inflation targeting. It seems that goal independent central banks prefer to choose alternative nominal anchors (like money targets).

367 At the same time the principal has explicitly or implicitly agreed to manage the rest of macroeconomic policy, especially fiscal, financial and exchange rate police in harmony with the nominal anchor.

368 The Governor of the Reserve Bank of New Zealand could have been dismissed for failing to meet the Banks' inflation targets during the first few years of their inflation targeting regime (Brash, 1996).

369 If inflation deviates by more than 1 percentage point from its target, the Governor of the Bank of England has to write an open letter the Chancellor of the Exchequer to explain the failure and what the Monetary Policy Committee is doing to correct the situation.

370 The Humphrey-Hawkins act in the USA requires that the chairman of the Federal Reserve Board appear before congress twice annually to account for the conduct of monetary policy. McCallum (1995) has warned, correctly, that this accountability to elected officials requires careful design to avoid relocating the dynamic inconsistency problem from the central bank to the government. This transference of the institutional problem to the government is the subject of chapter 9.

Clause 1.1 of the IMF's code of conduct (IMF, 2000b) is consistent with the contractarian solution to the principal agent problems of central monetary policy, by recommending the formulation of clear goals (including the relative weights, if there are multiple goals) in legislation, which also defines the scope for monetary authorities to pursue those goals, as well as the incentive mechanisms designed to encourage "good" behaviour, and arrangements to hold policy makers accountable for their decisions. Table 5.6 shows that the target in all but three of the inflation targeting countries is either set exclusively by government, or by government in consultation with the central bank. It is only in the Czech Republic, Mexico and Poland - amongst the inflation targeters - that the central banks have goal independence. Inflation targeting central banks are typically goal dependent and instrument independent, which matches the pattern of a principal-agent solution to the problem of monetary policy.

True to the principal-agent literature, the IMF's code of conduct addressed the monitoring of the policy decisions in clause 2.4, which requires regular assessments by the monetary authorities of monetary conditions, the prospects of achieving the targets and the policy implications of that assessment. Given the long and variable lags of monetary policy these assessments should preferably be forward-looking (IMF, 2000b: clause 2.4). Further, policymakers have to be held accountable for the implementation of policy, as a final step in the incentive compatibility of an institution. To that end, clause 4.1 of the IMF's code of conduct recommends that the central banker or the monetary policy committee be held accountable to a designated public authority for the conduct of monetary policy.

Adopting an explicit inflation target is, however, only the first step along the road to adopting a credible policy rule in the sense defined above (Taylor, 2000b). A central banker with extensive experience implementing inflation targets, New Zealand's Don Brash, put this first step in perspective, by arguing that "...in certain respects it is a mistake to think of inflation targeting as some kind of new approach to monetary policy... All the debates about how to formulate monetary policy in order to deliver the best outcomes are still relevant. Should we use monetary aggregates? Should we use Taylor rules?..." (quoted in Taylor, 2000b: 11).

But the first step is an important one as it represents a move towards adopting a policy rule – or systematic policy – so limiting the discretion of the monetary authorities and hence a step towards defining a nominal anchor. The problems of dynamic inconsistency are also addressed in principle, since inflation targeting is a forward looking policy, focussed on arresting emerging

inflationary pressure, and not on either contemporaneous inflation or the contemporaneous level of output or employment (Masson, et al., 1997).

Given the general policy rule for inflation targeting and instrument independence, the central bank still has to design institutions to encourage policy decisions consistent with the rule. Under inflation targeting these institutions often include a Monetary Policy Committee (MPC) composed of central bank staff and, sometimes, independent experts, or representatives of various sectors or interest groups. The MPC uses model based forecasts and off-model information in the implementation of targeting. Further, an incentive structure is required to shape the behaviour of the MPC towards implementing a specific targeting rule consistent with the general targeting rule. Typical features of such an incentive structure include: the publication of the minutes of policy meetings, the publication of voting records of individual members and so on.

In the service of transparency, the MPC's of some inflation targeting central Banks have decided to publish the minutes of their meetings, as well as the voting record of the various committee members. Given that the policy rule is not applied mechanistically, this last step is an important one to ensure that the committee is rational (that is, critical and competitive – see below), accountable for the discretion that they did (or did not) use in setting policy, and shielded from political or other pressures (Buiter, 1998). Though seven of the inflation targeting central banks listed in table 5.6 publish the minutes (or at least an extract thereof) from their policy meeting, this remains a minority practice amongst full fledged inflation targeters.

As per usual, monitoring is required for accountability[371]. But MPC meetings are typically closed to the public. Hence, openness with respect to the minutes and the voting pattern is required to monitor the use of discretion by the MPC. The MPC minutes would become an incentive for truth-telling since, for example, they would allow the public to verify that the MPC's decisions were based on information consistent with that contained in the Inflation Report (King, M.A., 1997). Additionally, publishing the minutes confirms the continued instrument independence of

[371] This brings us back to the problem of independent central banks in a democratic society. For Karl Popper the essence of democracy was that it should "keep open the possibility of getting rid of the government without bloodshed, if it should fail to respect its rights and duties, but also if we consider its policies bad or wrong...the major thing regarding a change in government is this negative power, this threat of removal. The positive power to appoint a government or premier is a relatively unimportant counterpart" (Popper, 2000 [1959]: 70-71). Monetary Policy Committee members are unelected. Nevertheless, their position would not be intolerable in a democratic society as long as their behaviour is sufficiently transparent to enable monitoring by the public. If a committee member had been seen to exercise consistently poor judgement it would be difficult to re-appoint such a member for another term.

the central bank, by demonstrating that no political or other external influence held sway over policy decisions (in opposition to the concerns of the annoyance hypothesis mentioned above).

Inflation targeting central banks typically adhere to the requirements of clause 2.4 in the IMF's code of conduct, by publishing detailed inflation reports containing an assessment of economic and monetary conditions, the likely future path of target variables (often in the form of fan-charts) as well as an analysis of policy implications given the targeting rules of the bank. All of the central banks listed in table 5.6 publish such reports. Additionally, inflation targeting countries have instituted regular testimony by central bankers and other senior officials on the MPC.

The composition and incentive structure of the MPC raises issues that reach beyond incentive compatibility to that of openness in institutional design, and these questions are considered in the next few paragraphs.

### *7.3.3 Openness*

There are two levels of openness in the institutions of a monetary policy regime: firstly, the policy framework – for example, the target level, tolerance range, relative weight of policy priorities and so on – should be open to critical evaluation to reflect progress in our knowledge of monetary economics. Christina and David Romer (1996) have appropriately highlighted the cost of an anachronistic policy rule despite advances in the theory and empirical knowledge on monetary economics. And chapter 4 indicated that rules with a "timeless perspective" (as per Woodford, 2002a) avoid the various time inconsistencies that motivated their formulation and yet avoid the trade-off between these inconsistencies and the committing to a rule once and for all against which Fischer (1995b) had cautioned.

However, to ensure that openness at the level of the policy framework leads to rules with a timeless perspective and not back to time inconsistency requires a second level of openness, that is at the level of policy implementation. At this second level, the implementation of the policy framework should be open to critical evaluation to reflect progress in knowledge about the implementation of monetary policy.

The IMF's code of conduct recognises the different types of openness required at the levels of framework and implementation. Clause 1.1 (IMF, 2000b) for example, considers the potential trade-off between permanence and flexibility at the level of framework should the goals and targets be fixed in separate legislation regulating the central bank. The IMF recommends formulating goals, their relative priorities and targets in separate central bank legislation which would rank "high in the hierarchy of legal texts" (IMF, 2000b clause1.1, preamble) while retaining the possibility of legislative review[372].

Formulating the inflation target and especially giving it priority over potentially competing policy goals, in separate legislation - as is the case with the Reserve Bank Act of New Zealand – is consistent with the code of conduct's recommendation. The goals, priorities and targets of the SARB's inflation target are not, however, formulated in the Reserve Bank Act of South Africa. Instead, the Minister of Finance (in consultation with the SARB) sets the target, and can do so without involving the legislative process. In this way the SARB's inflation target is more open to revision than recommended in the IMF's code of conduct.

Nor are the practical consequence of this irrelevant as was demonstrated when the Minister of Finance changed the domestic inflation target on the 29th of October 2002. In part III of the dissertation the institutional design according to which the Minister wields such far-reaching power is considered in greater detail and evaluated on institutional criteria.

Taking the framework as given still leaves much to be decided about the structure of the policy making body, though. The displacement of mystique by transparency mentioned in chapter 5 was accompanied by another silent revolution in the implementation of monetary policy internationally, the advent of the monetary policy committee (MPC). Whereas the Federal Reserve Board was designed with an elaborate set of rules to prevent dominance by prominent members of the Federal Reserve Board, the chairperson at the Federal Reserve Board has often exercised decisive leadership over the stance of policy, or were "more equal" than the rest of the Board as Alan Blinder (1998 21) recalled from his experience. In that sense the Federal Reserve Board resembled other central banks where governors typically dominated the setting of policy.

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372 This issue is taken up again in chapter 8 where a different line between in-period and constitutional politics on the policy framework is suggested.

However, during the nineties MPC's have gradually assumed decision making power in dozens of central banks. According to Robert Chote (2003) MPC's presently determine the stance of policy in no less than 80 central banks. This silent revolution could, perhaps, be understood as the rational result of an evolution in our understanding of monetary economics as per the intellectual history in Romer and Romer (1996): an autocratic decision maker may well be optimal where the issue is fairly simple and a rapid decision is important. As soon as the problem reaches any level of complexity though – and the modern understanding of the monetary transmission mechanism certainly qualifies as complex – then a consultative process has an advantage both in understanding the unfolding economic circumstances and in reconciling the often conflicting signals for policymakers that arise in any given situation[373] (Stigler, 1988).

Unfortunately, decision making by committee has a bad reputation, despite empirical research supporting the hypothesis that groups can improve on the decisions of individuals in many situations (Chote, 2003). The bad reputation of committee decisions derive partly from the drift towards "groupthink" as the psychologist Irving Janis (1972) disparagingly referred to committee decisions that were undermined by the following problems: pressure on dissenters to confirm by a powerful inner circle on the committee; disregarding of dissenting options dominance of one or a few forceful leaders, and a mutually reinforcing reluctance to consider alternative problem formulations or solutions to the "house view".

The factors that contribute to risk of "groupthink" on the MPC include the slow turnover of MPC members which may facilitate the development of a group culture over time. It is difficult for a new member to dissent from such a culture. This is especially so when incumbent members of the MPC fear that visible dissent on the MPC will unsettle the markets or harm the Bank's reputation (Chote, 2003). Accordingly, they may be reluctant to publish voting records and minutes of the MPC meetings.

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[373] An elementary example is the following situation faced by the MPC at the SARB in June 2003: At that time, domestic economic activity was slowing relative to, for example, activity in the USA. Export growth had slowed due to sluggish economic growth internationally and the appreciation of the Rand since 2002. While these factors pointed to a lower inflation forecast at the policy horizon, others such as the likely depreciation of the Rand (especially if the stance of policy was greatly eased), some high wage settlements and rapid increases in administered prices pointed in the opposite direction. Further, the base effect of the recent revision in the CPI index would have affected the slope of the decline in the inflation forecast. This revision had caused significant public pressure for an easing of policy, but from the perspective of the SARB (which sets policy according to a forward looking rule) the two events are linked only through the effect of the backward CPI revision on the forecast of CPIX inflation. And, conceptually at least, forecasted CPIX inflation at certain horizons could have risen after the CPI revision.

"Groupthink" results from a lack of competition on a committee. Like elsewhere in politics where significant power is at stake, society has an interest in competition (and the separation of powers), not collusion, where the MPC is concerned. Competition amongst MPC members brings two advantages: firstly, it encourages the policymakers to reveal information to which they were privileged. This is especially true of the party with the weaker bargaining power (Persson, Roland and Tabellini, 1997). Given the likelihood of private information at the central bank this is a strong argument for biasing the bargaining power against the executive members of the MPC.

Second, and more fundamentally, the usual epistemological argument for competition which underlies much of liberal economics is relevant to the MPC, too. Briefly stated and referring back to chapters 1 and 2: "nobody can know who knows best...[and] the only way by which we can find out is through a social process in which everybody is allowed to try and see what he can do" (Hayek, 1984: 15). Consequently, competition is the window of rationality for the MPC, as for society[374]. This is why Buiter and Sibert (2000) mention only two criteria as relevant to the appointment of non-executive members on the MPC, they are: professional expertise in monetary economics and monetary policy, and secondly, independence[375]. That is to say, the members should have something to contribute, and the freedom to make that contribution.

Some of the practical measures (see for example Buiter, 1999; and Buiter and Sibert, 2000) to encourage competition on the MPC include voting, the publication of those votes[376], the publication of the minutes of MPC meetings (even when they are not attributed), as well as the procedural arrangement that the governor speaks last at the MPC meetings to avoid influencing the discussion unduly. The Bank of England has, under Governor Eddie George, implemented these measures to ensure an open procedure for the implementation of monetary policy. Presently, the SARB's MPC operates without any of these measures that could enhance the level of critical discussion and ensure the effective independence of the MPC members. But the

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374 Rationality is used in the non-foundationalist critical sense introduced in chapter 2, where: "The critical attitude, the tradition of free discussion of theories with the aim of discovering their weak spots so that they be improved upon, is the attitude of reasonableness, or rationality..." (Popper, 1992 [1953]: 50-51). Accordingly, the objectivity of the MPC will not be found in the objectivity of its members, regardless of their undoubted professionalism. Rather, the objectivity will either be the "social result of mutual criticism" to use Popper's (1992 [1961]: 72) words, or it will not result at all.

375 Care is needed to appoint and retain talented people for the MPC. Once appointed the MPC members need resources – both research staff and especially time – to function critically and independently on the MPC.

376 In the absence of a published voting record strategic voting may occur on the MPC whereby MPC members vote for the decision most likely to win rather than expressing their own judgement.

burden of reform will fall on parliament (to amend the Reserve Bank Act and allow voting and publication of the votes) as well as on the SARB to publish the MPC minutes.

Consideration should also be given to the composition of the MPC. Buiter (1999: 9) argues that this committee should be large enough to capture a range of "insights and expertise" and that a committee of about seven seems to work for that purpose without becoming too unwieldy. Further, the members of the Committee should be appointed individually and held accountable individually (Buiter, 1999). There is no content to the idea of a collective accountability of the committee: the committee doesn't face collective dismissal, nor is there any embarrassment for the committee, collectively, if their decisions turned out poorly. More fundamentally, even if collective penalties could be devised contractually, they would prevent rational participation by any independent expert, who could not commit credibly to accepting a penalty for the decisions of a collective over which she had no effective veto.

In light of the importance of independently appointed and independently accountable members it follows that the non-executive members[377] of the MPC should play a major role on the committee (Buiter, 1999). Executive members may be appointed individually and held accountable individually, but their position on the committee still derives from their position at the Bank and is therefore less independent than the non-executive members.

Intuitively, a flexible rule implies that society wishes the MPC to implement the rule on balance, but recognises that the MPC members will each have to exercise individual judgement[378] as to the state of the economy, and hence how the contingent plan is to be implemented. If a majority of the MPC practise as economists in one institution (and drawing on the same research department) then it is likely that their individual interpretations will be correlated, whereas the interpretations of the non-executive members are likely to be uncorrelated. If effectively independent non-executive members dominate the MPC, and the stance of policy determined by simple majority, then the non-cooperative solution yields, on average, the policy rule with a small

[377] Those members not formally employed by the central bank.

[378] These individual assessments can be thought of as shocks that introduce a random component to each MPC member's application of the rule.

random noise component[379]. However, if the executive members dominate, then the outcome could contain a systematic deviation from the rule in the form of the correlated judgement of the executive members[380].

Additionally, issues such as the tenure and remuneration of MPC members should be considered. For example, a further reason for having a predominantly non-executive membership on the MPC is that the monetary policy process is a full-time activity if done with the necessary earnestness and executive members are often engaged elsewhere. In Buiter's words: "Monetary policy is not likely to be well designed and executed by a few monetary dilettantes wafting in a few days each month for a spot of rate setting" (Buiter, 1999: 12). Non-academic members should also be offered full-time employment on the MPC, as there are few relevant non-academic careers that would not entail a conflict of interest with decisions taken at the MPC. Even academics who could participate on a part-time basis would have to be based in the same city as the MPC, as the flexibility and even randomness of the MPC timetable would make it next to impossible to keep a reasonable time-table at a university in another city[381].

The duration and re-appointment of MPC membership is an important institutional matter that influences the independence of the committee substantively, but also affects the potential membership and the incentive for potential members. Buiter and Sibert (1999) argue that non-executive members should not be re-appointed, as this would undermine not only the apparent, but also the actual independence of the member concerned[382].

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379 Donald Brash also connected effective independence and transparency with the ability of the policy maker to stick to her policy rule. "Transparency of the objective-setting and policy formulation and implementation process is clearly the key to effective accountability" Brash (1996: 126) argued after he had claimed that "...the combination of a public contract, and formal accountability for producing outcomes in accordance with that contract, provides very powerful incentives for the Governor to ensure that monetary policy decisions are, indeed, consistent with the PTA [inflation target]".

380 The monitoring problem of inflation targeting makes this particularly serious, as the Bank is not always completely open with its models and conditioning variables. Consequentially, the public will not always know if the Bank is deviating systematically from the rule due to a correlation of subjectivity on the part of the executive members, or because of adverse and unforeseen shocks. This risks introducing a principal-agent risk of monitoring. Practically speaking, there is a risk that a Bank dominated MPC could systematically err on the side over vigilance against inflationary dangers, at the cost of other goals in the general targeting rule.

381 Speaking from his personal experience of trying to participate part-time on the MPC in London and lecture part-time in Cambridge Buiter concluded that: "Requiring external MPC members to be part-time would restrict membership to the following categories of people: central London based academics, the independently wealthy, the semi-retired, and those who do not take their MPC job and/or their other job seriously. I would not wish to restrict external membership of the Monetary Policy Committee to these categories" (Buiter, 1999: 12).

382 Willem Buiter put this view into practise by declining re-appointment on the Bank of England's MPC, despite the widespread recognition of his leading contribution to the working of the committee.

The length of MPC spell requires careful consideration, as it influences not only the independence of the relevant members but also the incentives for potential MPC members. The academic world is an important potential source for expert participation on the MPC. However, academic leave is unlikely to extend much beyond two or three years. In any case, an academic whom has fallen behind the literature by three years or more has become hard to employ. It is important to allow academic participation on the committee – and not just as a twilight job for retiring academics – but that will require an exit clause for them after, say, 3 years. Shorter appointments will also make the financial cost of participation less severe for those with high earnings potential due to human capital, but without non-human capital[383] (Buiter, 1999). The outer-end of the MPC tenure should be restricted to 5 or 6 years to prevent institutionalising, and loss of effective intellectual independence (Buiter, 1999).

At the time of writing the SARB's MPC consisted of: Governor Tito Mboweni (chairperson), Gill Marcus (deputy governor), XP Guma (deputy governor), Ian Plenderleith (deputy governor), Ernie van der Merwe (chief economist), Bernie de Jager (senior deputy chief economist), Brian Kahn (deputy chief economist and head of the monetary policy research unit) and Bertus van Zyl (advisor to the governors). None of these are non-executive members. Though it is incorrect to claim that this composition will, necessarily, lead to uncritical or sub-optimal decisions, it is the case that this composition risks "groupthink", as described above, and offers few guarantees of individual independence for the members.

Finally, the SARB uses the Monetary Policy Review (published twice annually) and the Monetary Policy Statement (released shortly after every MPC meeting). Without wishing to overstate the criticism it is nevertheless the case that these publications have not yet provided a clear conception of the general and specific targeting rules used by the MPC. For example, chapter 5 shows an extract from the monetary policy statement of 12 June 2003 where the MPC argued that forecast inflation was in the middle of the target range at the appropriate policy horizon (Mboweni, 2003a). Given the targeting rule described in van den Heever (2001) the MPC should, accordingly, have left the stance of policy unchanged. In the event, the MPC lowered interest rates, and by a surprisingly large margin[384] (Mboweni, 2003a).

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[383] The Federal Reserve Board has found it difficult to make first-rate appointments at any but the highest level of the board due to the opportunity cost of a relatively low-salaried civil service position (Buiter, 1999).

[384] Few independent economists could claim that they had anticipated the extent of the policy easing on the 12th of June 2003. Indeed, the expectation for 100 basis points (as opposed to 150 basis points) was strongly held in the market (Seria, 2003a; 2003c).

It is difficult for the public in this country to learn the MPC's rule if publications such as the monetary policy review and the MPC statements are not fully and transparently consistent with the policy decision. Ultimately the MPC's decision depends on the conditional forecast for inflation and the horizon at which that conditional forecast is matched with the target. There is little reason a priori why the MPC should not use the monetary policy statements and the monetary policy review to explain to the public over what horizon their conditional forecast of inflation is consistent with the explicit target, and what the implications are for the stance of monetary policy. Had the MPC adopted this approach on the 12th of June 2003 then the monetary policy statement would not have argued (in successive paragraphs) that forecasted inflation was consistent with the centre of the targeting range at the appropriate horizon, and that the stance of monetary was eased by an unexpectedly large rate cut (see the extract quoted in chapter 5).

Don Brash of the RBNZ was quoted in section 7.3.1 where he argued that transparency by the monetary authorities eventually removes the Bank as a source of news from the markets, leaving only the economy to generate the news. The issue with the SARB MPC's decision of 12 June is not that the markets responded unfavourably or even that it is yet possible to criticise the content of the decision. Rather the criticism is that the SARB was an independent source of news, causing volatility on domestic capital and foreign exchange markets (Seria, 2003a). If the economy had been the source of this news, then the monetary policy statement would have reported a forecast somewhat below the mid-point of the target[385], in which case the news would have been how unexpectedly favourable the prospects were for inflation in this country.

### *7.3.4 Cost efficiency*

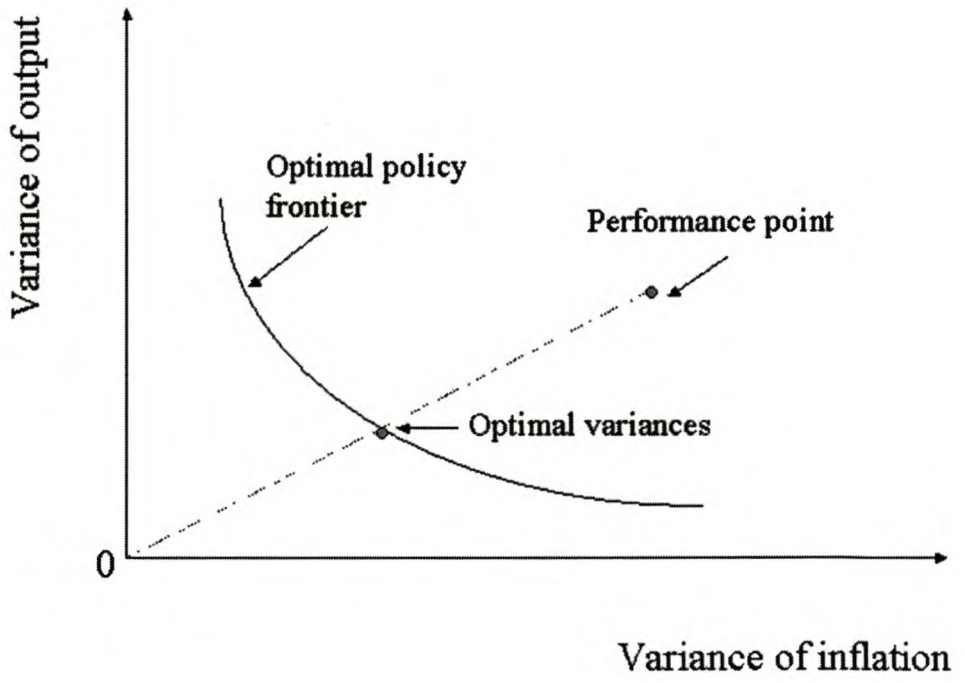
The cost-efficiency of a monetary policy regime is measured against society's loss function. Conventionally, this means that society desires low and stable inflation without disrupting the steady progression of output. However, forward-looking behaviour causes a particular difficulty in identifying and comparing the costs of macroeconomic policies. Taylor (1979) suggested a rational expectations framework for analysing monetary policy relative to a loss function that

[385] An alternative interpretation is that the SARB's MPC is not aiming at the mid-point of the target range, but closer to upper end of the range. The risk of treating the targeting range asymmetrically is discussed more fully below.

values low output fluctuations around the NAIRU[386] and low inflation fluctuations around a target rate of inflation. An econometric simulation could be used to construct a locus in two-dimensional space (with variability in inflation and in output measured on the two axes) that traces the optimal variability in output and inflation for various relative weights of output and inflation variability in the loss function[387].

Monetary policy cannot affect the position of this frontier directly. But monetary policy does determine whether the economy is operating on or close to the frontier (with the relative weights in the central bank's loss function determining the location on the frontier). In such an analysis monetary policy determines the performance point of the economy relative to the efficient frontier (Taylor, 1979). A cost efficient monetary policy framework brings the performance point closer to the economy's efficient frontier. Figure 7.1 is a schematic representation of Taylor's (1979) optimal policy frontier and a stylised performance point.

*Figure 7.1 Taylor graph*




386 Non-accelerating rate of unemployment.

387 This sub-section draws on du Plessis and Smit (2003).

Taylor (1979) suggested this framework as a tool for comparing the outcomes of competing policy frameworks for monetary policy, by comparing their outcomes relative to the efficient frontier.

It was argued in chapter 5 that monetary policy in South Africa had not been used as an anti-cyclical tool to any great extent since 1980. This raises the possibility that monetary policy under the new regime of inflation targeting could, as a happy by-product, also be a more effective stabilisation tool than had been the case previously. The paucity of data since the inception of explicit inflation targeting in March 2000 requires a slight reformulation of the question though, i.e. whether monetary policy under the post-1994 regime has been more effective in stabilising the economy than during the earlier period. This choice of sample period follows Aron and Muellbauer (2000) in arguing that the gradual implementation of the de Kock Commission's (1985) recommendations and the turbulence of the mid-eighties implied a very different monetary policy regime subsequently. The 1994 split can, therefore, be motivated by reference to the enhanced focus on price stability under the Dr. Stals and also political changes during that year which eliminated the near-binding balance of payments constraint.

At stake is the question of the relative contribution to the improved outcome (in terms of output and inflation[388] stability) for the South African economy observed over the period (see table 7.5 and figure 7.2) that may be attributed to more efficient monetary policy.

*Table 7.5* *Improved inflation and output variability for South Africa*

| | 1986-1993:4 | 1994:1-2002:4 |
|---|---|---|
| Variance of inflation[a] | 4.44 | 1.69 |
| Variance of output[b] | 0.03 | 0.017 |

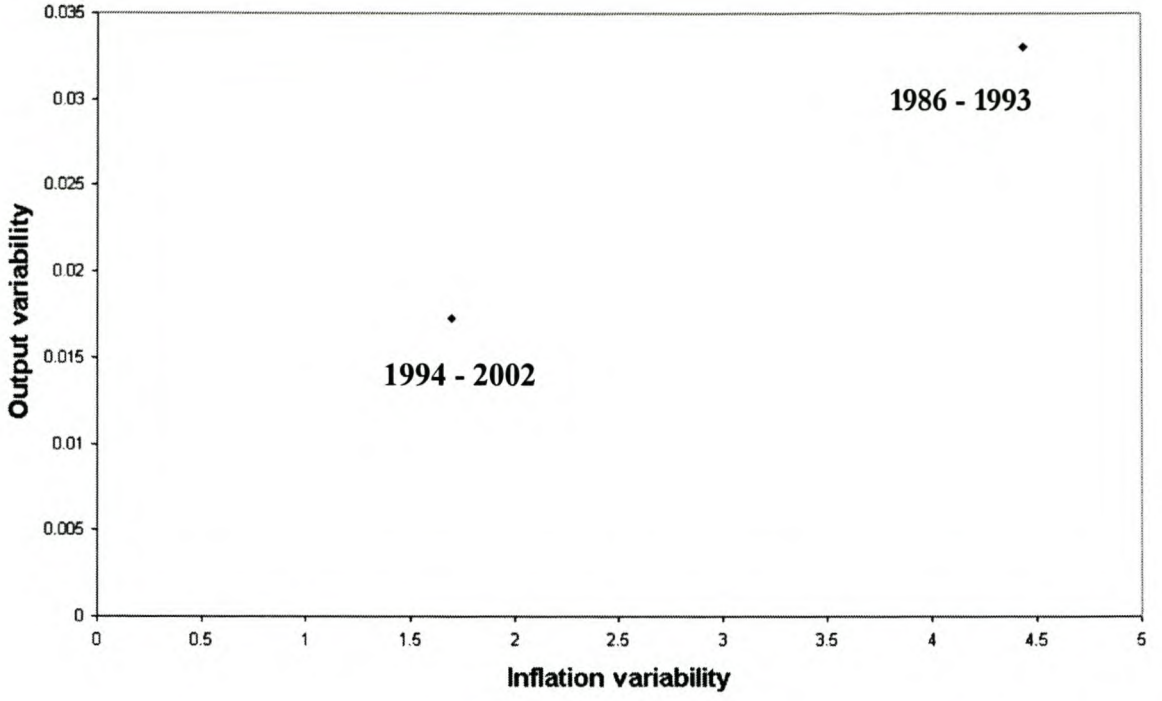
Data: seasonally adjusted quarterly data from the SARB's quarterly bulletin

a: The variance of consumer price inflation (SARB series 7032N)

b: The variance of detrended log of real GDP (SARB, Series 6006D) (see, Cecchetti, et al., 2001)

[388] Inflation is measured as the percentage change in the CPI index here.

*Figure 7.2 Improvement in output and inflation variability*




Evidently, the South African economy has been characterised by substantially lower variability in inflation as well as lower output variability since the adoption of an enhanced focus on price-stability as a macro goal and the elimination of the balance of payments constraint following democratic elections in 1994. However, this is different from saying that the improvements, such as they were, can be attributed to the new monetary policy regime. It is right to remember that the South African economy is open and significantly influenced by an international economy that recorded a similarly sanguine period of spreading stability during the nineties. Domestically, too, developments such as the continuing liberalisation of the economy and improvements in fiscal management may have added to a more stable economic background.

Cecchetti et al. (2001) recently built on the work of Taylor (1979) to devise a methodology for decomposing the improvements in economic performance to policy and the general environment respectively. Their methodology was implemented here in a four-step procedure for decomposing the improved inflation-output outcomes into that part attributable to improved policymaking and a residual attributable to improvements in the economic environment both locally and internationally.

The first step was to calculate the performance points for the economy in the two sub-periods and is shown in table 7.5 above. Step two requires the specification of a benchmark "ideal" monetary policy against which the actual policy could be measured. In contrast with Cecchetti et al. (2001), Taylor-type rules were estimated for both sub-periods[389]. There are both positive and negative reasons for this departure from the methodology of Cecchetti et al. (2001). The negative reason is that the Taylor rule gains much in simplicity without sacrificing much in performance against an optimal policy rule (Gali, 2002). More positively, the alternative methodology allows a richer model of the economy (in this case the quarterly model of the Bureau for Economic Research at the University of Stellenbosch) to be used to trace the effects of monetary policy on inflation and output[390].

The methodology's third step involves the calculation of the predicted performance of the economy in the two periods given the Taylor rules and the BER's structural model. In a fourth step the average international inflation inversion calculations of Cecchetti et al. (2001) were used to decompose the improvements in the economic environment into policy and non-policy related components. Table 7.5 above has already completed the first step of the methodology. Step two required the estimation of Taylor rules to represent optimal policy in each period. Aron and Muellbauer's (2000) extensive investigation of Taylor rules for South Africa was used to guide the specification here. Table 7.6 shows the estimated Taylor functions for the two sub-periods.

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[389] Cecchetti et al. (2001) used optimal control theory to define minimum variance instrument rules.

[390] Pagan (2003) recently demonstrated the dramatic difference in implied dynamics between a structural macro-econometric model such as the BER's used here and a small New Keynesian policy model used by Cecchetti et al. (2001).

*Table 7.6* *Taylor rules for South Africa*

| The Dependent variable is the Bank Rate | | | |
|---|---|---|---|
| 1986-1993 | | 1994-2002 | |
| Variable | Coefficient | Variable | Coefficient |
| Constant | 1.85 | Constant | 2.65 |
| | (4.68) | | (1.96) |
| Bank Rate$_{t-1}$ | 0.88 | Bank Rate$_{t-1}$ | 0.71 |
| | (33.06) | | (11.04) |
| GAP | 0.26 | GAP | 0.65 |
| | (4.4) | | (3.59) |
| Excess M3 growth$_{t-1}$ | 0.05 | $\pi^e_t$ | 0.14 |
| | (2.4) | | (1.13) |
| | | D1998H2 | 4.3 |
| | | | (5.42) |
| Durbin's h | 1.131 | Durbin's h | 1.125 |

t-statistics are in brackets

Where

| | |
|---|---|
| GAP$_t$: | the output gap in period t |
| Excess M3 growth: | a measure of excess money growth defined as the four-quarter growth in M3 less the four-quarter growth in nominal GDP. |
| $\pi^e_t$: | Expected inflation (derived using the Fischer equation and the real interest rate measure used in chapter 5). |
| D1998H2: | a zero-one dummy to capture the volatility in domestic interest rates caused by the financial market turmoil following the Russian default in the second half of 1998. |

The Taylor rules were then used to generate a benchmark time series for the monetary policy instrument (the short term interest rate[391]) over the relevant horizon. This benchmark policy rule was then embedded within the BER's quarterly model for the South African economy to generate an alternative inflation and output history conditional on benchmark monetary policy.

[391] The Bank rate was used to proxy the policy instrument.

Table 7.7 shows the output and inflation variances for this conditional history, as well as for the conditional history adjusted for the ratio of output-inflation variance of the actual history.

*Table 7.7* *Modelled inflation and output variability for South Africa*

| | 1986-1993:4 | 1994:1-2002:4 |
|---|---|---|
| Variance of inflation[a] | 4.12 | 1.69 |
| Variance of output[b] | 0.032 | 0.018 |

a: The variance of CPIX inflation given benchmark policy and the BER's model

b: The variance of detrended log real GDP given benchmark monetary policy and the BER's model.

The following graph combines the information in tables 7.5 and 7.7. An imaginary Taylor graph is drawn through the point realised by the policy benchmark.

*Figure 7.3* *Observed changes in economic stability relative to the benchmark*

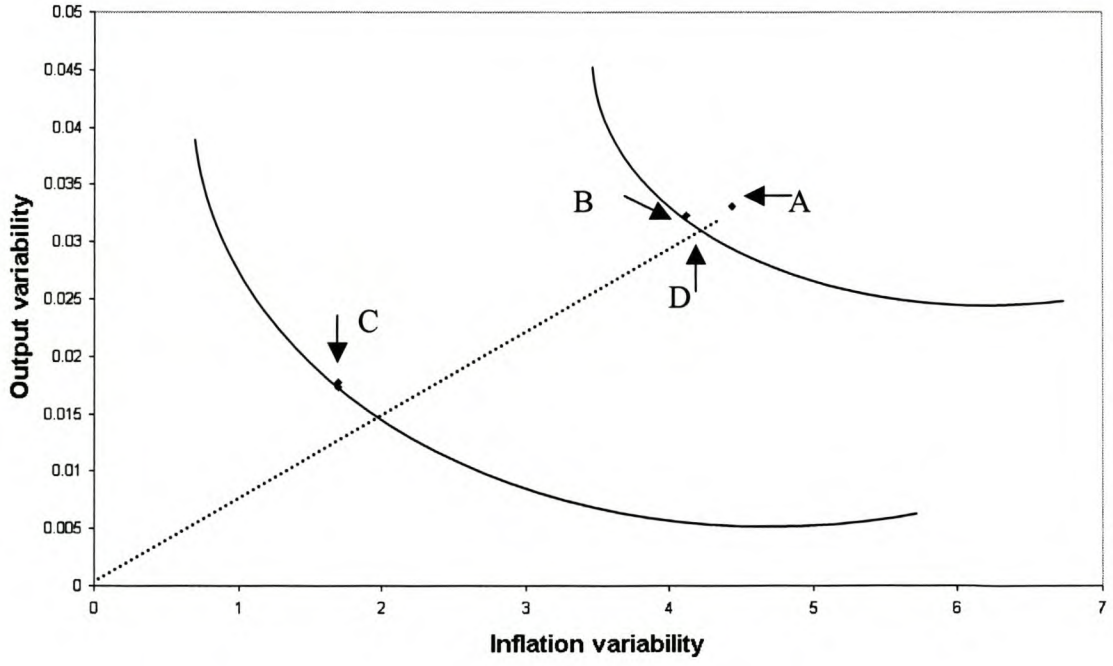


Figure 7.3 shows that the performance point of the economy (point A) was above a Taylor graph passing through the benchmark outcome (B) for this first period. This implies a policy inefficiency represented by A-D on the graph. During the post-1994 period the performance point of the economy shifts to C, and this is near enough indistinguishable from the outcome

under the benchmark model, implying zero policy inefficiency relative to the benchmark at that point.

At this point we can follow Cecchetti et al.'s (2001) method of decomposing the improvement from A to C into a proportion attributable to increased policy efficiency and a portion due to the inward shift of the policy frontier (represented by the Taylor graph through the benchmark outcome). First we calculate a measure of the total observed change in stability for the economy, which is defined as the value $\Delta P = P1 - P2$, where $P_i$ is period specific and defined in equation (7.1) below. A positive value of $\Delta P$ implies increased observed stability for the economy overall.

$$P_i = \lambda_i Var(\pi_i) + (1-\lambda_i) Var(y_i) \tag{7.1}$$

Where:

$\lambda_i$: The SARB's relative inflation aversion in period i[392]

$\pi_i$: Observed inflation in period i

$y_i$: Observed real output in period i

A single figure measure $\Delta S = S_2 - S_1$ is used to measure shifts in the policy frontier towards the origin. When $\Delta S$ takes a negative value, the economic environment is more stable in the second period as compared with the first. To that end the measure $\Delta S$ measures the weighted changes under benchmark policy conditions, as per equation (7.2) below:

$$S_i = \lambda_i Var(\pi_i)^* + (1-\lambda_i) Var(y_i)^* \tag{7.2}$$

Where:

$\lambda_i$: The SARB's relative inflation aversion in period i

Var(.)*: The relevant variance under optimal policy conditions

An improvement in stability due to policy is measured, in turn, with the variable $\Delta E = E1 - E2$, where E is defined as in equation (7.3) below and a positive value for $\Delta E$ indicates an

[392] In the calculations below the SARB's inflation aversion in period 1 was assumed to be the average of the inflation aversion calculated for the set of 23 countries in Cecchetti et al. (2001) for the eighties. Likewise, their average for the nineties was taken to be the SARB's inflation aversion in period 2. The two values are 0.27 and 0.62 respectively.

improvement in policy efficiency. A positive value for ΔE means that the economy has approached the policy frontier more closely, whereas a negative value means a movement away from the policy frontier.

$$E_i = \lambda_i \left[ Var(\pi_i) - Var(\pi_i)^* \right] + (1-\lambda) \left[ Var(y_i) - Var(y_i)^* \right] \tag{7.3}$$

It follows that the proportion of the total improvement in terms of output-inflation variability is given by the ratio Q in equation (7.4). Table 7.8 below calculates the relevant measures and Q for the South African example under consideration.

$$Q = \frac{\Delta E}{|\Delta P|} \tag{7.4}$$

*Table 7.8* *Decomposing the improved output-inflation performance*

| | P | S | E |
|---|---|---|---|
| Period 1 | 1.22 | 1.13 | 0.09 |
| Period 2 | 1.06 | 1.06 | -0 |
| | ΔP = 0.16 | ΔS = -0.07 | ΔE = 0.09 |
| Q = 0.55 | | | |

The last line of Table 7.8 shows a value of 0.55 for Q. In other words 55% of the improved output-inflation experience in South Africa since 1994 can be attributed to improved policy efficiency. Two tentative conclusions follow: firstly, improved policymaking contributed significantly to greater economic stability since 1994. Secondly, the contribution of policy to greater economic stability in South Africa compares favourably with the experience of inflation targeting countries considered by Cecchetti et al. (2001), where the lowest value for Q was 0.48 (for U.K.).

Decomposing the improved economic performance in output and inflation stability internationally (as per the literature review in chapter 6) and locally indicates that the era of inflation targeting has not only offered the potential for improved economic stability, but that

that policy makers have been able to deliver on that promise, having adopted inflation targeting. In this sense, the adoption of inflation targeting has been cost-effective, i.e. the bulk of the subsequent efficiency gains in output-inflation variability have been attributable to monetary policy in most inflation targeting countries. It was shown above that the same is true of the South African experience with inflation targeting. This is not an argument for complacency at the SARB, but an indication that the more systematic policy making of the post-1994 period has contributed in a quantifiable manner to domestic economic stability. Further, the demonstrable gains from increasingly systematic monetary policy should encourage additional institutional reforms in the same direction.

### *7.3.5 Overall coherence*

Overall coherence requires that different dimensions of policy be harmonised to ensure greater efficiency, and to minimise the unintended consequences of policy implementation in other fields. To this end, clause 1.2 of the IMF's code of conduct considers the institutional relationship between monetary and fiscal policy, and deal with issues such as the extent to which the central bank may extend credit to the government, participation of the central bank in primary and secondary debt markets, the allocation of central bank equity and profits. Clause 1.3 of the IMF code of conduct considers other task which the government delegates to the central bank, including: public debt management, banking services for the government, economic and policy advice.

Full-fledged inflation targeting has been characterised by a careful institutional design to avoid especially fiscal dominance. Indeed, better co-ordination between monetary and fiscal policy is one of the benefits that many developing countries hope to gain from adopting inflation targeting (Mishkin, 2000a). This sub-section discusses three inconsistencies in the present policy mix in South Africa: unindexed capital gains tax, administered prices and centralised wage bargaining.

#### 7.3.5.1 Unindexed capital gains tax

Finance Minister Manuel introduced a capital gains tax in his budget of March 2000. This tax reform was to take effect in April 2001. Whether this is sound or counterproductive reform is

the topic for another dissertation. At stake here is whether the capital gains tax is consistent with the inflation target which the minister introduced in the same budget.

The consistency of capital gains tax with an inflation target turns on whether capital gains will be deflated with some representative price index before the taxable amount is calculated. Absent such indexing the Treasury has a financial incentive in higher inflation, as it inflates asset prices and raises the income from capital gains tax. Contra Grote and Fletcher's (2000) argument that inflation targeting obviates the need to index capital gain before taxing it, the argument here is that inflation targeting emphasises the need for such indexing. Firstly, the Treasury's credibility is undermined when government revenue stands to gain from inflation, while the fiscal policy is apparently set in support of the inflation target. Secondly, the Minister of Finance determines the level and width of the inflation target domestically. Given the unindexed capital gain the Minister has a clear incentive to keep that target higher than would be optimal if the tax had been consistent with the inflation target. Since South Africa has one of the highest formal inflation targets internationally, this concern is not simply academic.

#### 7.3.5.2 Administered prices

Perhaps the most glaring inconsistency in the total policy mix relevant to inflation targeting is the government's failure to set administered prices consistent with its own inflation targets. State-owned enterprises and parastatals such as Eskom and Telkom have consistently implemented rate increases above the SARB's inflation target (Chalmers, 2002b; 2002c). Administered prices account for about a quarter of the consumer price index, and according to Schaling and Schussler (2001) have accounted for much of the unsatisfactory inflation outcomes (such as they were) since the announcement of the target.

Though the Minister of Finance has acknowledge that the setting of administered price has undermined the SARB's attempt at meeting the inflation target (Ensor, 2002) and has even pressurised the Public Enterprises Minister and Public Enterprises Director General (Chalmers, 2002a), both he and they have failed to curb inconsistent rate hikes by government departments, local authorities, state-owned enterprises and parastatals.

The SARB's repeated warning and complaints that government was undermining the central bank's effort to meet the inflation target (Mboweni, 2002; 2003a; 2003c), finally forced the

Department of Public enterprises to launch an investigation into the setting of administered prices during May 2003 (Ensor, 2003). The outcome of this investigation was uncertain at the time of writing.

The problem of administered prices is deep rooted and associated with the pricing power of firms in monopolistic or near monopolistic circumstances (Schaling and Schussler, 2001). Indeed, inflation targeting creates the incentive for administered prices to rise faster than the target rate, as this may succeed in generating a relative price rise for the relevant parastatal. This incentive is a clear institutional inconsistency, and in an inflation targeting environment some combination of the following polices are required to solve it: privatisation for those state-owned enterprises where practicable and regulatory checks on other state-owned companies and government authorities. However, the inconsistency will not be addressed if privatisation merely changes the owners of a monopoly. Where privatisation creates a private sector monopoly regulators are again needed to prevent delinquent price hikes (Schaling and Schussler, 2001).

#### 7.3.5.3 Centralised wage bargaining

Labour markets play an important role in the dynamics of inflation. Structural features of the labour market, such as the extent of unionisation, minimum wages, and legislation about non-wage employment costs, all contribute to the flexibility of the labour market. Flexibility, in turn, affects the dynamic adjustment of wages, and hence of prices in response to various shocks.

Since inflation targeting is a framework for monetary policy that uses the monetary policy transmission mechanism to keep forecasted inflation consistent with a target range, dynamic price and wage adjustment are of central concern in the design of an inflation targeting regime. If, for example, the labour market was characterised by a high degree of wage indexation, or was highly inflexible, then the monetary authorities might have to respond very sharply (with their policy instrument) to an adverse price shock. Such a sharp adjustment in the interest rate might, in turn, lead to sub-optimally large output fluctuations.

It is for this reason that the adoption of inflation targeting is often accompanied by labour market reforms to allow a more flexible transmission of wage and price signals through the

economy[393]. Further, the benefits of an independent inflation targeting central bank may require sustained reforms beyond a 'threshold' of liberalisation[394] (Cukierman, Miller and Neyapti, 2002). This would make the trend of labour legislation in South Africa doubly unfortunate from an inflation targeting perspective; not only is the trend in the wrong direction, but the successful pursuit of low and stable inflation may require sustained reforms in the opposite direction.

In contrast with many inflation targeting countries[395], the South African labour market has become progressively less flexible in recent years. Some of the recent policy initiatives by the government that have worsened labour market flexibility domestically include (Barker, 1999a; Mahadea, 2003): the extension of labour laws to irregular labour, the minimum wage and other provisions in the Basic Conditions of Employment Act that affects the direct an indirect costs of labour, increasing centralisation of wage negotiations within industries[396] through bargaining councils. These features of the labour market have contributed to persistence in wage agreements, and these have often exceeded rises in labour productivity growth in recent years, and have hence been inflationary (Akinboade, Niedermeier and Siebrits, 2002).

The structure of the South African labour market, and the increasing inflexibility of that market due to new policy measures will make it increasingly difficult for the SARB to pursue its inflation target with moderate interest rate adjustments (Akinboade, et al., 2002). To render labour market institutions coherent with inflation targeting will require liberalisation of the wage bargaining process, not increasing centralisation. Recent policies that have increased the power of unions, increased the indirect cost of labour and encouraged enterprise bargaining may have to be revised or counteracted as South Africa has not only moved in the opposite direction from the international trend in labour legislation (Barker, 1999a), but especially so for the trend in inflation targeting countries (Brash, 1996).

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393 The reasoning is analogous to that for administered price. An inflexible labour market awards pricing power to labour and this might force the central bank into sub-optimally activist policy.

394 This issue is taken up again and discussed in detail in chapter 8.

395 See, for example, Sherwin's (1999) or Brash's (1996) account of the institutional reforms that complemented the introduction of New Zealand's inflation target. These reforms included: privatisation, removal of subsidies, liberalising the capital account, adopting a floating exchange rate, increasing competition in the private sector by rolling back regulations, comprehensive fiscal reforms and (importantly) extensive labour market reforms to counteract wage indexation and "a 'cost-plus' pricing mentality" (Sherwin, 1999: 17).

396 Some labour economists, for example Barker (1999b), have argued that this creates a bilateral monopoly that hands pricing power to labour and industrial firms, so raising prices and wages and compromising the flexibility of both.

A second dimension of institutional coherence between inflation targeting and the labour market concerns wage settlements. The centralised system of wage negotiations mentioned above has been an ongoing cause for concern over inflationary pressure (for example, Mboweni, 2003c). Be that as it may for unionised labour, institutional coherence also requires that the SARB's wage policy match that which is recommended for the economy as a whole. In that regard it is difficult to reconcile the recent 12% salary rise which the Governor accepted (for the year ending on 31 March 2003) (Petros, 2003) with his repeated admonishing of private and public sector wage settlements in excess of 10% per annum[397] (for example: Mboweni, 2003b; 2003c).

Of course, if the Governor's labour productivity increased by 6% over the next year, then his salary increase would be consistent with the inflation target. That is also the test that the Governor has recommended to the private and public sector as a guideline in their wage negotiations (Mboweni, 2002; 2003c). But to date the Governor has not furnished any evidence to suggest that his salary rise is consistent with the inflation target. This episode is a setback for the SARB's credibility: whereas the Governor's salary has no direct impact on domestic inflation, it undermines the credibility of the SARB's arguments that broader wage agreements (which do have an inflationary impact) should be consistent with the inflation target.

To summarise, the improved co-ordination between various economic policies (especially fiscal and monetary policy) is one of the main benefits of inflation targeting. Unindexed capital gains tax, inflexible labour legislation and inappropriate administered price hikes are presently undermining the overall coherence of the inflation targeting framework in South Africa.

## 7.4 DEVELOPING COUNTRIES AND INFLATION TARGETING

Monetary policy affects macroeconomic outcomes (especially real output and inflation) along the various channels that are collectively called the monetary policy transmission mechanism. These channels include: firstly, the 'traditional' expenditure–effect of monetary policy on aggregate demand via its direct effect on consumption, investment and net exports (including the effect on

[397] The Governor also accepted a salary increase of 9% for the year starting in April 2003 (while the SARB's staff will also receive a pay rise in excess of the target at 8.25%). However, the Governor argued that he was not responsible for the pay rises since they were recommended by a independent committee (Seria, 2003b). He could, presumably, have refused the rise or asked for reconsideration.

exchange rates); secondly, the effect of monetary policy on financial markets and thereby on aggregate demand through wealth effects on investment and consumption, and thirdly, the effect of monetary policy on balance sheets and hence on the extension of credit (see Mishkin, 1996 for an overview).

All of these channels of transmission are, however, influenced by the underlying structure of financial markets in the relevant economy. And it is with respect to financial markets where the structural gap between developed and developing countries are sometimes at it widest. In many developing countries private sector portfolios are restricted to a limited menu of assets (cash, demand deposits, time deposits and sometimes primary issues of government securities), which are traded in geographically limited and (often) illiquid markets, with a host of government restrictions and a largely oligopolistic market structure (Agénor and Montiel, 1999). The relatively backward financial sectors of many developing countries, can according to Agénor and Montiel (1999), be attributed to the financial repression[398] which is the order of the day in many developing countries.

The underlying reason for the financial repression, and the resultant financial repression, is often fiscal though, with government unable to raise the desired tax income due to political weaknesses and inefficiencies of their tax structures (Agénor, 2000a: 57). It follows that the financial sectors within the group of developing countries would show the same dispersion as the variation on political, and especially, tax structures, and this is borne out by the evidence (Agénor, 2000a). As a contingent rule for monetary policy that embodies a view of the monetary transmission mechanism (even if it remains open to revision), inflation targeting is clearly only an option for an economy where the degree of financial repression has been greatly reduced, or altogether eliminated. This logic is borne out by the list of developing countries which have been classified as full fledged inflation targeters by Carare and Stone (2003).

Two implications for the study of inflation targeting in developing countries follow from the above: firstly, when weighing the appropriateness of inflation targeting as a monetary policy framework for developing countries it is not relevant to consider the peculiarities of those

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398 "Financial repression" is a collective term used for those measures employed by governments in developing countries that have the effect of keeping the financial sector artificially small (hence "repression"). A typical set of these repressive measures is: firstly, ceilings and other limitations on interest rates; secondly, high reserve requirements, thirdly, forced asset allocation of assets (to the government from commercial banks); and, finally, quantitative controls and selective credit allocation (Agénor, 2000a; Agénor and Montiel, 1999).

countries with financial structures caused by a high degree of financial repression. Secondly, it emphasises the criterion of overall coherence at the level of macroeconomic policy. More specifically, there is little need to consider the merits of inflation targeting where fiscal dominance occurs.

A number of risks to the credibility of inflation targeting in emerging market economies have been mentioned above, including exchange rate shocks and the forecastability of inflation. Forecasting inflation is especially difficult in developing countries due to the impact of exchange rates on domestic prices and the importance of commodity prices and other shocks that increase the instability of economic activity in developing countries. It is a stylised fact that inflation, output, exchange rate and interest volatility have been greater in emerging market inflation targeters than in the economies of the industrialised targeters[399] (Fraga, Goldfajn and Minella, 2003: Table 2). When these disturbances are numerous and empirically important, it becomes difficult to know when an observed discrepancy between inflation and the central bank's target is due to a mistaken stance of policy in the past, or due to an exchange rate shock during the control lag[400,401].

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[399] The performance point of the average emerging market inflation targeter is far above and to the right of the comparable point for an industrialised inflation targeter as shown on the Taylor graph introduced above.

[400] Emerging market countries face large capital flows relative to the size of their economies and also tend to be open with respect to international trade (Agénor and Montiel, 1999). This openness introduces an important dimension to inflation targeting in these countries, i.e. the effect of exchange rate fluctuations on domestic inflation and output and hence on the stance of monetary policy on the one hand, and the effect of monetary policy on prices and output via its effect on the exchange rate on the other. While the exchange rate of the emerging market economy is subject to shocks originating either in commodity markets (Prebisch shock) or in financial markets (Calvo shock), the appropriate policy response to exchange rate movements will depend on which of these two shocks caused the movement. A monetary conditions index (a weighted average of the interest rate and the exchange rate) could mislead the policymakers in their response to the exchange rate movements.

For example, an adverse Prebisch shock causes an initial depreciation of the exchange rate (and a depreciation of the equilibrium exchange rate), as well as lowering aggregate demand. Whereas the weaker exchange rate will have an inflationary effect, the adverse aggregate demand shock has a deflationary effect. The former effect usually dominates the latter empirically, and so an inflation targeting Central Bank should raise the interest rate to steady the exchange rate, but not to prevent it from attaining its new - and lower – equilibrium level. In contrast, a MCI would mislead policymakers facing a Prebisch shock into raising interest rates to counter the currency's weakness (Eichengreen, 2002; Mishkin, 2000b).

If, on the other hand, the currency's weakness was due to a Calvo shock, the MCI would give the correct policy-advice, i.e. the Bank should tighten monetary policy to counter the inflationary consequences of the depreciation and change the incentive for international capital flows, which is likely to have an appreciating effect on the currency. It is important to note that the interest rate response is not due to a concern with the level of the exchange rate, but due to the Bank's concern with its domestic inflation target, as is summarised by the offsetting components of the MCI (Eichengreen, 2002; Mishkin, 2000b).

[401] Exchange rate movements imply yet another difficulty for the inflation targeting central banks in an emerging market, due to the more rapid pass-through of import prices to the domestic price index identified by Calvo and Reinhart (2000). However, Eichengreen (2002) demonstrated that the rate of pass-through is endogenous and depends on the credibility of the monetary authorities. A credible inflation targeting central bank will not be expected to accommodate the knock-on effects of the depreciation. Hence, the observed rapid pass-through does not undermine the possibility of implementing inflation targeting in emerging market economies. At the same time, private sector inflation expectation in response to the depreciation is a direct evaluation of the credibility of the inflation targeting regime.

This danger underscores the importance of using a conditional forecast for inflation (and using it transparently) as an intermediate target. If the central bank had been transparent about the reasons for its monetary policy stance in the past and if, additionally, this explanation was forward-looking (and the private sector could evaluate that the stance of policy was indeed consistent with the target over the control lag) then the Bank should not have insurmountable difficulty in attributing observed discrepancies between inflation and the target to unanticipated shocks (Eichengreen, 2002). In chapter 5 (and elsewhere in this chapter) it was argued that the SARB's inflation targeting regime could be improved both with respect to the forward-looking nature of the explanations for the stance of policy, as well as the transparency of the conditional forecast from which the policy stance derives.

Barry Eichengreen (2002) has, consequently, argued that the communications strategy of the central bank is clearly of great importance in the face of numerous shocks during the control lag which may even be more frequent – or at least more unsettling - for an emerging market economy. Building on the argument in chapter 5, a credible inflation targeting regime could enhance the flexibility of a central bank in an emerging market economy when faced with adverse shocks.

A flexible response would entail a thorough communication of the nature (and expected persistence) of the shock and an explanation of how the targeting regime will respond, that is to say over what horizon will the forecast return to the target and conditional on which interest rate path (Fraga, et al., 2003). Mishkin (2003: 6) summarised the flexible response for an emerging market central bank to an adverse shock in a four-step procedure: Firstly, identify the nature of the shock; secondly, estimate the likely initial effect of the shocks as well as the second round effects; thirdly, use the central bank's general targeting rule to calculate an optimal response that minimises the loss function, and finally, provide a detailed public explanation of the instrument path and the likely path for inflation.

Eichengreen (2002) and Fraga, Goldfajn and Minella's (2003) arguments are consistent with the evidence provided by Mishkin and Schmidt-Hebbel (2001) that inflation targeting central banks in developing countries have implemented more far reaching communications strategies (publishing minutes, voting records and so on) than is the case for inflation targeting central banks in developed countries, on average.

However, table 7.4 also indicated that developed countries had greater confidence in publishing their conditional inflation forecasts. A successful communications strategy could preserve the central bank's credibility in the face of adverse price shocks, but only if the Bank's forecasts are good on average. That is to say, good public relations cannot remedy a fundamentally poor forecasting performance; it can only limit the damage to the credibility of a fundamentally sound policy caused by occasional shocks.

To the extent that forecasting problems and the relative more unsettled economic environment undermine the credibility of the policy, the benefits of inflation targeting will be less. Indeed, the literature points to a trade-off between credibility and flexibility under these circumstances[402] (Eichengreen, 2002). A less credible Central Bank may, consequently, be forced to target inflation more strictly – causing greater output volatility in the process.

The danger of being pushed towards strict inflation targeting in order to gain credibility is likely to encourage inflation targeting central banks in emerging markets to seek institutional alternatives, including greater transparency about the rule and openness about the implementation thereof (Eichengreen, 2002). Such a campaign for credibility often includes the publication of the model and of the expected evolution of its conditioning variables in addition to an inflation report which has become associated with fully-fledged inflation targeting countries (Eichengreen, 2002). The case of Brazil is instructive here: following the financial crisis of early 1999, the Brazilian central bank adopted an inflation target as a vehicle to build (and build rapidly) the credibility which had been lost during the crisis. To that end the Bank adopted a remarkably open targeting regime, publishing not only minutes of the board meetings, but also the forecast model and forecasts for inflation and real output growth.

The introduction to inflation targeting in chapter 5 was followed by a taxonomy of inflation-targeting regimes at the start of this chapter according to which an exacting set of institutional criteria was used to define the group of full fledged inflation targeters. But Carare and Stone's (2003) taxonomy recognises that many countries use some aspects of a full fledged inflation

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[402] Since the dynamic inconsistency demonstration added momentum to the case for rules as opposed to discretion in monetary policy, monetary economists have worked with an assumed trade-off between flexibility and credibility. The application of principal-agent analysis, described in the preceding paragraphs, and a broader understanding of "rules" as contingent/systematic plans have done much to undermine the perceived inevitability of such a trade-off in practical central banking (Walsh, 1995). Whereas the trade-off may well exist in the short run, the focus of rule-like monetary policy is on the longer run where the enhanced credibility of a rule-like policy brings scope for flexible response by the monetary authorities, too. Credibility gives scope for flexibility in the implementation of a contingent plan, since the motives of the central bank is not brought into question (Blinder, 1999; and Masson, et al., 1997).

targeting regime, especially in what Agénor and Montiel (1999) would call an orthodox stabilisation programme[403]. Mahadeva and Sterne (2002) recently provided a comprehensive theoretical and empirical discussion regarding the inclusion of various elements of a full fledged inflation-targeting regime in such stabilisation programmes. Since these programmes are mainly relevant to developing countries, this introduces a further important topic related to inflation-targeting in its broadest sense, with issues such as: the appropriate response to over- and undershooting of the target during the disinflation and the endogeneity of an inflation target during disinflation. However, this dissertation attempts an institutional evaluation of full fledged inflation targeting, on Carare and Stone's (2003) taxonomy, and the contention is, therefore, that the South African monetary policy regime has more in common with this group than with the majority of 'inflation targeting'[404] countries in the widest sense of that term.

## 7.5 INSTITUTIONAL SHORTCOMINGS OF THE SARB'S INFLATION TARGETING REGIME

From the application of Masson et al.'s (1997) test, the main shortcomings of the SARB's inflation targeting regime were identified as institutional (apart from the track record on inflation, which cannot be addressed directly by policy measures, except through their impact on the implementation of policy and, importantly, the credibility of the regime). This section considers the institutional shortcomings of the present targets design and derives ameliorating policy proposals.

Firstly, the fan chart is a conditional forecast of the probability distribution of the SARB's inflation model, given the monetary policy committee's (MPC) view on the likely development of the economy, domestically and internationally. There are, however, problems with the present version of the SARB's fan chart, which reveal underlying imperfections in the technical design of the monetary policy framework: the intermediate target is not observable from the fan chart in the absence of public knowledge of the SARB's suite of models, the paths assumed for non-modelled variables and assumptions made about off-model events. In this way, the SARB's forecast target falls short of the requirements for an optimal intermediate target described above.

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[403] Agénor and Montiel (1999) distinguish between money-based and exchange rate based orthodox stabilisation programmes, but this distinction is not consequential here as both types of programme can – and in practice do – contain elements typical of inflation targeting regimes, such as conditional forecasts for the path of inflation.

[404] According to Mahadeva and Sterne (2002) more than 80% of inflation targeting countries in the year 2000 did so without inflation being low and stable as is the case with full fledged inflation targeters.

A second important shortcoming in the present design of domestic inflation targets is the specification of the target range in terms of annual averages for CPIX inflation[405]. In other words, the SARB is charged with keeping the average of forecasted inflation rates for a particular calendar year within the target range. In contrast, a defined horizon regime specifies a horizon (typically 6 or 8 quarters) at which forecasted inflation must match the target. With a defined horizon the policy signal is derived from a single forecast (as opposed to an average of forecasts) and is always evaluated at the same horizon (as opposed to the varying horizon caused by the passage of time relative to the calendar year).

Specifying the target in terms of annual averages has the harmful consequence that policy is biased towards undue activism under some conditions and unduly timid under other circumstances. Though this claim is demonstrated with two examples below, the point is quite general.

Assume monetary policy has been given a target of 8% for forecasted inflation (whether this is the upper edge of a target range or a point target is inconsequential for this illustration). Assume further that the transmission mechanism in this economy is deterministic and very simple: a change in the interest rate has no effect on forecasted inflation for two quarters and then has a negative impact on forecasted inflation of 0.3% per quarter for each 100 b.p. rise in the interest rate for the next 6 quarters. The interest rate implications of two cases are considered here[406]: first a monotonically declining inflation forecast, and second an inflation forecast with a turning point within the horizon considered.

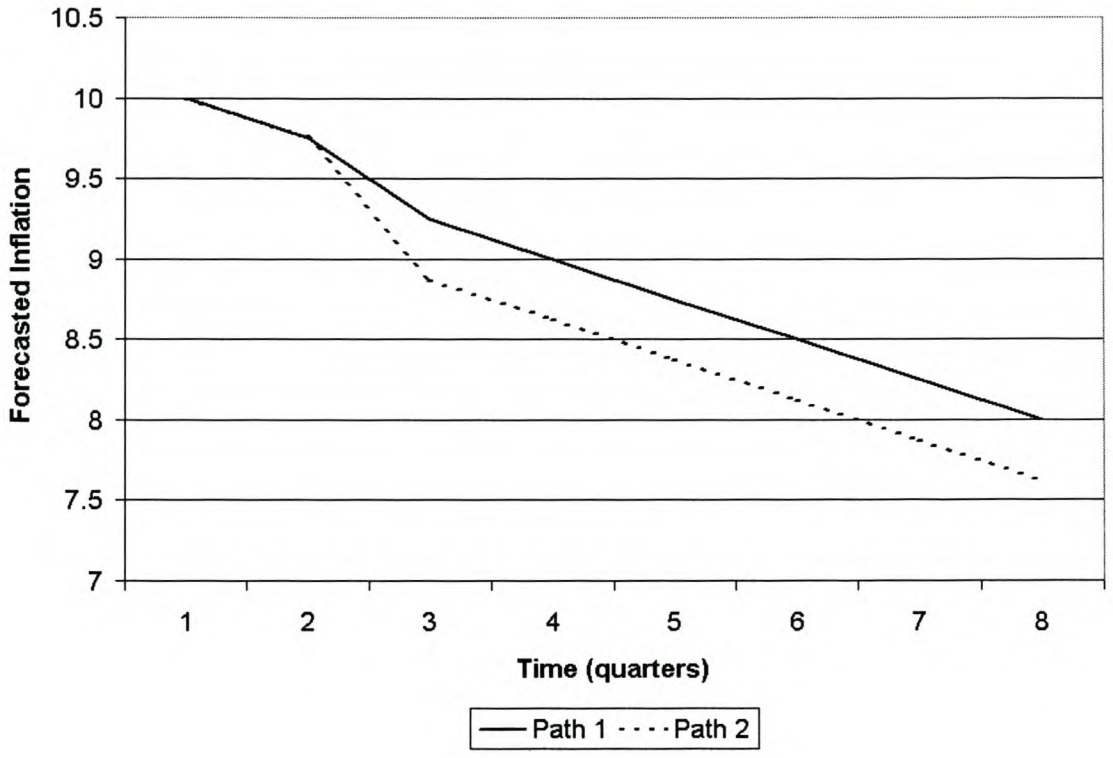
An example of case 1 is shown in figure 7.4 where the forecasted paths for inflation under two regimes are indicated (starting with an assumed 10%). Path 1 indicates the forecasted inflation path given a defined horizon of 8 quarters. Under the assumed conditions this path implies an initial interest rate rise of 83 b.p. to ensure that the forecast matches the target over that horizon. The second path is forecasted inflation given the requirement of matching the average forecasted inflation rate in the second year with the target. To generate the more rapid disinflation required by the latter specification, monetary policy has to be tightened more sharply (by 208 b.p. in this

[405] This criticism is from du Plessis (2003).

[406] The monetary authorities are assumed to follow a constant interest rate strategy as a specific targeting rule. This assumption is made solely to keep the example tractable.

case) as compared with path 1. The general point is that the average target regime requires a more disinflationary forecasted path for inflation in case 1[407].

*Figure 7.4* *Path of interest rates with defined horizon and annual average targets: Case 1*



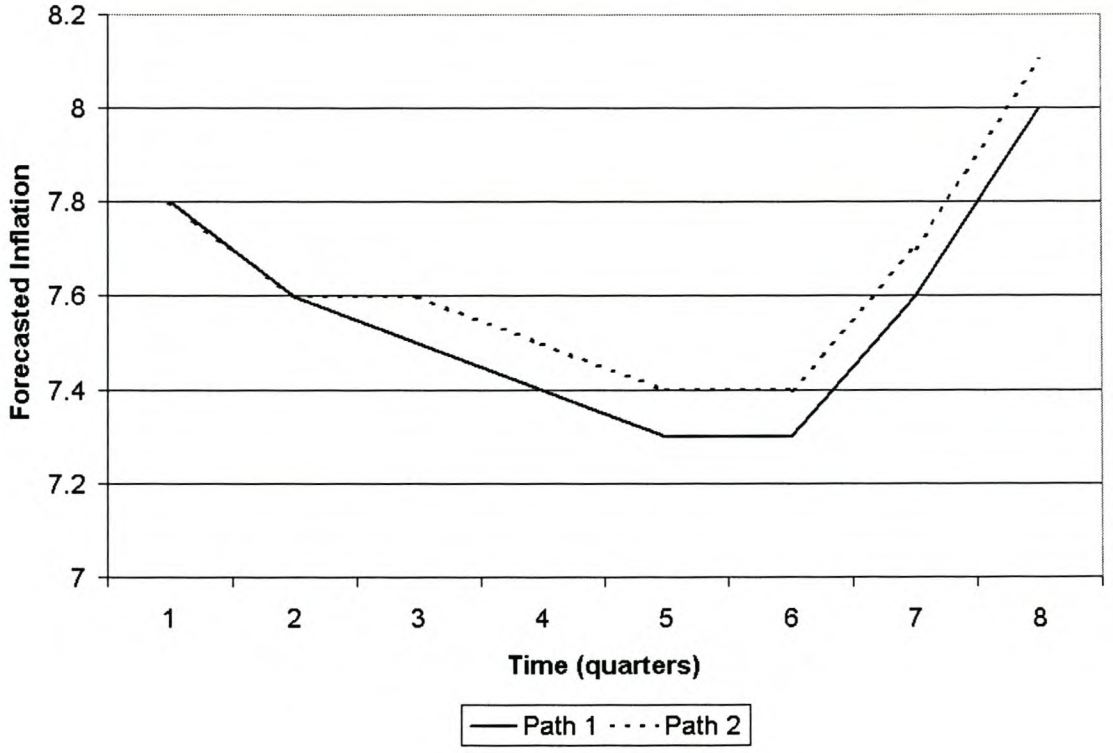

In scenarios like case 1 the monetary authorities are tempted into unnecessary activism. The cost of such activism is measured in terms of excessive output volatility relative to the output path under a defined horizon target regime.

An example of case 2 is shown in figure 7.5 where the forecasted paths for inflation under two regimes are indicated (starting with an assumed 7.5%). Path 1 indicates the forecasted inflation path given a defined horizon of 8 quarters. To ensure that forecasted inflation matches the target two years hence, the monetary authorities have to raise interest rates by 100 b.p. due to inflationary pressure apparently gathering at that horizon. Path 2 traces the forecasted inflation assuming an average inflation rate target. Since the average forecast of forecasted inflation for the second years is consistent with the target the monetary authorities are tempted into leaving policy

[407] Of course, the ratio of interest rate rises are specific to this example and do not generalise.

on hold in this case. The price of complacency in case 2 is that sharper interest rate tightening in the future that would be required to return forecasted inflation to the target.

*Figure 7.5* *Path of interest rates with defined horizon and annual average targets: Case 2*




Admittedly, the two cases used here are not exhaustive. However the time series properties of the inflation process (i.e. it is approximately I(1), or slow moving) means that the pattern is not likely to be much more complicated for any 8 quarter forecast.

In summary - depending on the pattern for forecasted inflation - specifying the forecast target in terms of a calendar year average encourages either overly activist or complacent policy relative to using a defined horizon. In the language of new institutional economics, the present design is not cost-effective. Further, it is more difficult for the public to monitor the stance of policy with respect to the present design of the target, when compared with the alternative design of a defined horizon.

Thirdly, the clarity of the policy signal is undermined by the specification of the target in terms of a range, as opposed to a point target[408]. The upside of a target range is that, ostensibly, it offers greater discretion for the central bank to allow for other factors in the loss function without loosing credibility (Goodfriend, 2003: 15). However, this argument fails against the specification of general targeting rules specified above, where it is not the range of the inflation target, but the relative weight on other variables in the loss function that determines the degrees of freedom for the monetary authorities.

In principle, a range and point target could function identically: if the monetary authorities set the stance of policy to ensure that, over the specified horizon, forecasted inflation matched the mid-point of the target range, then the target range and point-target regimes would be observationally equivalent. However, the public nature of an explicit policy target creates the incentive for both the public and policy makers to attach great importance to the edges of the target range; policy is a success as long as inflation (both forecasted and observed) is (just) within the upper (or lower) edge of the range, and a failure if (just) outside. This focussing on the edges of a target range is called a "hardening" of the edges (Mishkin, 2000b). In South Africa the upper end of the range, whether 6% or 5%, seems to have hardened in this way[409].

However, hard edges are likely to undermine the credibility of monetary policy, due to the inability of the SARB (or any central bank) to control observed inflation with the accuracy implied by a hard edge. The long and variable lags of the transmission mechanism, combined with the random shocks (to which this economy is famously exposed) prejudices sharply against the suggestion that monetary policy could engineer inflation just below the hard edge, without observed inflation falling outside the range something like 50% of the time[410]. Indeed, Mishkin (2003) argued that central banks in emerging market economies have to be especially careful to

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[408] This criticism is also from du Plessis (2003).

[409] On the 29th of October 2002 Finance Minister Trevor Manual used the medium term budget policy statement to adjust the SARB's target range for forecasted inflation in 2004 (and beyond), by raising the upper edge of the range from 5% to 6% (for the annual average of CPIX inflation) (Manuel, 2002). The minister's adjustment of the range's upper end (following the earlier lowering to 5%) is *prima facie* evidence of this hardening of the edges domestically. Indeed domestic discussion seems fixated with the upper end of the range.

The monetary policy statement of 12 June, 2003 where the Governor argued that interest rates should be lowered (and surprisingly fast) even though forecasted inflation was in the middle of the target range at the appropriate horizon with unchanged interest rates is further evidence of such a hardening edge (Mboweni, 2003a).

[410] The problem is that *ex post*, observed inflation is likely to fall beyond the hard hedge at least some of the time, hence causing a poor evaluation of the policy framework. In contrast, the observed inflation rate is likely to fall mostly within the tolerance range typically specified symmetrically around a point target.

emphasise the mid-point and de-emphasise the edges of the target range, or face potential instrument instability as well as control problems at the hard edge.

An unintended consequence of a target range could, therefore, be that the SARB conveys the impression of great certainty, not uncertainty, about the monetary policy transmission mechanism. This is ironic since the SARB's choice of a band rather than a point target was partly based on the argument that a band "...affords the central bank some discretion in taking decisions on the monetary policy stance, and allows for a degree of uncertainty and statistical variability that is present in all economic processes" (Mboweni, 2000b).

In addition to undermining credibility, the hard edge leads to an asymmetrical response function at the SARB, with for example a rise in forecasted inflation of a quarter of one percent from 5.5% having no impact on the stance, but lead to a tightening of policy if the base forecast was 5.8%. Such an asymmetrical response at a hard edge is almost certainly inconsistent with any sensible loss function for monetary policy (Mishkin, 2000b).

By sticking with a range target, the government has exposed the framework for monetary policy to further embarrassment if another adverse price-level shock(s) should push (observed) inflation just above 6% for 2004. Nor would this require a very large price level shock relative to the government's forecasted 5.5% for average CPIX inflation in 2004. Meanwhile the SARB has to set policy *ex ante* with an implicitly asymmetrical loss function.

Evidently the government has not bought the SARB much breathing space with the adjustment of the target band, and the Bureau of Economic Research's latest survey of inflation expectations (see table 7.2 above) show that analysts in various sectors do not treat an upper band of 6% as credible yet.

Fourthly, forecast targeting will only be scientific if the forecast becomes intersubjectively testable. Like all economists, the members of the MPC are subjective, and their forecasts will only gain objectivity by being exposed to criticism amongst the committee members and outsiders. At a minimum, such criticism requires an observable forecast target, along the lines described in section 7.3.1 above.

One non-political aspect of such observability is the publication of the model(s) used by the SARB. The intermediate forecast target requires openness with regard to the model. As Sims (2003: 12) argued: "a projection for a desirable path for inflation (or deflation) that cannot be backed up with an explanation of how current central bank actions are expected to lead to the desired path, will undermine central bank credibility". Measured against this standard (and the political dimensions raised in Part III) the SARB's targeting procedure is presently insufficiently observable and, by the same count, insufficiently objective.

Fifthly, Governor Mboweni has, surprisingly, claimed that neither the fan chart nor other forecasts yield unambiguous policy signals. In his words: "...there is no mechanical process in which the forecast directly determines the policy decisions. It must be remembered that the econometric models and forecasts are tools to help the Reserve Bank solve economic problems. They are only *one* set of tools used in the decision making process" (Mboweni, 2001a: 3, emphasis in the original).

In opposition to the Governor, it is argued here that the fan chart (or other forecast) is meant to capture the model and off-model deliberations of the MPC. The forecast is not mechanistic, but the pragmatic result of the MPC's disciplined use of various inputs. But the forecast does yield a policy signal mechanistically, via the specific targeting rule; else it ceases to be a targeting rule. Further, the public is only able to evaluate the stance of monetary policy if the forecast is used to generate policy signals through the specific targeting rule.

Whereas the fan chart, and forecast target relates to the *ex ante* evaluation of the stance of policy, there is also an *ex post* dimension to inflation forecast targeting (Haldane, 2000: 6). The eventual inflation outcome is not irrelevant under forecast targeting, since the central bank and the public are both interested in realised low and stable inflation and stable output. However, if the Bank's forecasting framework is good, then the realised inflation rate would not deviate systematically from the target, nor will it do so with a large standard deviation. Non-systematic *ex post* deviations from the target, with a low variance, are therefore a continuous evaluation of the forecasting framework (but not of the stance of policy).

Sixthly, the SARB's communication strategy has, to date, been insufficiently sensitive to this distinction between the *ex post* and *ex ante* dimensions of policy evaluation. Whereas the Monetary Policy Review contains the forecast target and hence the *ex ante* dimension of policy

evaluation, the SARB's website contains a bar which compares the latest observed inflation rate with the target range[411]. Given the communications strategy and the shortcomings of the present forecast target the SARB is likely to struggle in establishing and maintaining credibility for the new regime.

## 7.6 RECOMMENDED INSTITUTIONAL REFORMS FOR SOUTH AFRICA'S INFLATION TARGETING REGIME

Various institutional reforms have been suggested in this chapter. Such reform is, however, costly (in terms of resources, uncertainty of outcome and even political capital). Additionally, the expected benefits of these reforms should inform their sequencing. This section summarises the reforms proposed throughout this chapter (in table 7.9) and adds two subjective rankings for each proposal, one reflecting the importance of the reform (with "1" being "high", "2" being "medium" and "3" being "low") and the other reflecting the expected cost of the institutional reform (with "1" being "low", "2" being "average" and "3" being "high"). Table 7.9 also indicates the authorities that will have to lead each reform. Appendix 7.2 provides an explanation for the priority and cost rankings.

*Table 7.9 Recommendations for institutional reform*

| No. | Policy reform | Priority | Cost | Responsible institutions |
|---|---|---|---|---|
| 1 | Implement a defined target horizon | 1 | 1 | National Treasury |
| 2 | Clarify the communication of the policy rule | 1 | 1 | SARB |
| 3 | Match monetary policy statement with policy rule | 1 | 1 | SARB |
| 4 | Distinguish forward and backward looking dimensions of IT in communications | 1 | 1 | SARB |
| 5 | Keep SARB wage settlements consistent with the target | 1 | 1 | SARB |

[411] A useful *ex post* evaluation of the policy framework requires a times series of inflation outcomes, not a snap shot as on the SARB's website.

| No. | Policy reform | Priority | Cost | Responsible institutions |
|---|---|---|---|---|
| 6 | Publish detailed conditional forecasts | 1 | 2 | SARB |
| 7 | Solve administered prices problem | 1 | 3 | National Treasury<br>Department of public works<br>Local governments<br>Municipalities |
| 8 | Reform labour legislation | 1 | 3 | Parliament |
| 9 | Substitute a point with tolerance range for the target range | 2 | 1 | National Treasury |
| 10 | Publish (unattributed) minutes of MPC meetings | 2 | 1 | SARB |
| 11 | Publish at least a "core" forecasting model | 2 | 2 | SARB |
| 12 | Index capital gains tax | 2 | 2 | National Treasury |
| 13 | Publish voting record of MPC members | 2 | 3 | Parliament<br>SARB |
| 14 | Appoint non-executive members to the MPC | 3 | 3 | SARB |
| 15 | Develop independent research teams under direction of various MPC members | 3 | 3 | SARB |

The content of table 7.9 is shown visually in table 7.10, which plots the recommendations in two dimensions according to their rankings on the priority and cost scales. This table could guide the sequencing of reforms, starting with those in the upper right hand corner (important and inexpensive).

*Table 7.10* *Priorities and cost of institutional reform*

| | | Priority | | |
|---|---|---|---|---|
| | | Low | Medium | High |
| Cost | Low | | 9. Substitute point for target range<br>10. Publish MPC minutes | 1. Defined target<br>2. Clarify rule<br>3. Match *policy statement* and rule<br>4. Forward and backward dimensions<br>5. SARB wage settlements |
| | Medium | | 11. Publish "core" model<br>12. Index capital gains | 6. Publish detailed forecasts |
| | High | 14. Non-exec MPC members<br>15. Independent research teams | 13. Publish MPC votes | 7. Administered prices<br>8. Labour legislation |

## 7.7 CONCLUSION

The chapter described how inflation targeting is consistent with the criteria of an efficient monetary policy regime derived form the New Institutional literature and is also consistent with the IMF's code of Good Practices on Transparency in Monetary and Financial Policies. The chapter has also examined the extent to which the SARB's inflation target falls short of a benchmark regime that fully embodies all of the beneficent institutions. This analysis revealed a number of deficiencies in the present institutional design of inflation targeting domestically and the policy recommendations in the final section were designed to address these.

Chapter 3 recorded the rise of independent central banks, but this important institutional development (which is also closely associated with inflation targeting) has received only cursory

treatment up to this point in the dissertation. However the following two chapters will consider this issue in detail.

## Appendix 7.1 Interpretation of Standard and Poor's credit ratings

The following table shows the grade and interpretations of the sovereign credit ratings by Standard and Poor's used in Table 7.1

*Table 7.11 Interpretation of Standard and Poor's credit ratings*

| Rating | Investment grade | Conventional interpretation |
|---|---|---|
| AAA | Investment | Extremely strong capacity to meet its financial commitments |
| AA+<br>AA<br>AA- | Investment | Very strong capacity to meet its financial commitments |
| A+<br>A<br>A- | Investment | Adequate capacity to meet its financial commitments |
| BBB+<br>BBB<br>BBB- | Investment | Less vulnerable than lower rated obligators but facing adverse conditions which could lead to obligator's inadequate capacity to meet its financial commitments |
| BB+<br>BB<br>BB- | Speculative (Junk) | More vulnerable than the obligators rated above. Obligator currently has the capacity to meet its financial commitments but adverse conditions will likely impair this capacity |
| B+<br>B<br>B-<br>C | Speculative (Junk) | Currently vulnerable and dependent on favourable conditions to meet its financial commitments |

Source: (Carare and Stone, 2003)

Appendix 7.2 Explanations for the priorities and expected costs of reforms

*Table 7.12 Explaining the priorities and expected costs of institutional reforms*

| No. | Policy reform | Priority | Expected cost of reform |
|---|---|---|---|
| 1 | Implement a defined target horizon. | The calendar year average leads to unclear and sometimes misleading policy signals (du Plessis, 2003). | National Treasury (via the Minister of Finance) simply has to announce the change. No legislative changes will be required. |
| 2 | Clarify the communication of the policy rule. | The MPC has not always communicated the rule consistently, with a confusing effect on the public and on the markets. The SARB will be a source of news in the economy until the rule has been communicated with clarity. | All MPC members must be disciplined in using the framework of inflation forecast targeting to communicate. It is not difficult to explain the stance of policy in terms of the general and specific targeting rules. |
| 3 | Match monetary policy statement with the policy rule. | This is an extension of the reasons for 2. | This does not require any further work by the MPC, only that statements and decisions be synchronised to reflect the actual policy rule. |
| 4 | Distinguish forward and backward looking dimensions of IT in communications. | Widespread support for and co-operation with the SARB's framework (for example, with wage settlements) depends on the public's comprehension of the stance of policy, and the forward-looking nature of the regime. | As above, this does not require any new communication strategy, only a more subtle use of the instruments already available. |

| No. | Policy reform | Priority | Expected cost of reform |
|---|---|---|---|
| 5 | Keep SARB wage settlements consistent with the target. | SARB wages set in a backward-looking manner and above the inflation target have significantly undermined the drive to set private and public sector wages modestly and forward looking. | A consistent wage policy simply requires a commitment from the SARB's board. |
| 6 | Publish detailed conditional forecasts. | It is difficult (perhaps impossible) to judge the use of a forward looking policy rule without access to the conditional forecast. Conditional forecasts are opaque without information about the conditioning variables. | Though the forecasts already exist, they are probably not yet in a format suitable for publication. The SARB will have to find a clear way of communicating the forecasts and conditioning factors. |
| 7 | Solve administered price problems. | The large weight of administered prices in the CPI index increases the importance of this point. Large and persistent administered price increases force the SARB into overly activist policy, so destabilising the economy. | The high cost of institutional reform derives from the many role players involved as well as the potential conflict with other policy goals such as the extension of services to poor communities. |
| 8 | Reform labour legislation. | Centralised wage bargaining and the power of unions could force the MPC into overly activist policy and undermine the credibility of the policy framework. | The high cost of reform is due to the political power of unions domestically (especially in government) and the cost of changing existing labour legislation. |

| No. | Policy reform | Priority | Expected cost of reform |
|---|---|---|---|
| 9 | Substitute a point target with tolerance range for the target range. | A point target gives a clearer policy signal and avoids hardening edges. | National Treasury (via the Minister of Finance) simply has to announce the change. No legislative changes will be required. |
| 10 | Publish (unattributed) minutes of MPC meetings. | Assurances of a critical discussion at the MPC are not as powerful as a demonstration that contentious issues were debated. Further the minutes will give insight into policy relevant information not reflected in the stance of policy. | An executive decision at the SARB will be sufficient to publish the minutes. |
| 11 | Publish at least a "core" forecasting model. | The conditional forecasts are opaque without some indication of the econometric model used. Economists will not expect the MPC to follow the model mechanistically. | An executive decision at the SARB would be sufficient to publish the model, but some work would be required to present a "core" model in a digestible format to the public, with some cost to the SARB's research staff. |
| 12 | Index capital gains tax. | This inconsistency between tax and monetary policies is glaring, but given the low marginal rates involved and the high entry level for capital gains tax, the reform is not the highest priority. | National Treasury will have to change the specifications of the capital gains tax, and Parliament may have to amend legislation. |

| No. | Policy reform | Priority | Expected cost of reform |
|---|---|---|---|
| 13 | Publish voting record of MPC members. | The independence of MPC members and the openness (and critical nature) of the policy procedure require a mechanism to record dissent. | The cost involved is relatively small at the SARB where an executive decision is sufficient. But Parliament may need to change the Reserve Bank Act to allow shared responsibility for the policy stance and such reform is politically expensive. |
| 14 | Appoint non-executive MPC members. | Non-executive members would counteract some of the dangers of "group think" at the MPC. But they would only function effectively if their independence was sufficiently established which would require prior reforms such as 11 and 14. | This reform is not only expensive in the salaries required to attract skilled non-executive members, but also in search costs, given the relative scarcity of suitable candidates domestically. |
| 15 | Develop independent research teams under direction of various MPC members. | The independence of MPC members is greatly enhanced when they have control over their research input. Again, this reform follows logically after the other reforms to improve the openness of the MPC. | This reform is very expensive in terms of resources, and perhaps prohibitively so in a developing country. |

# PART III THE POLITICAL ECONOMY OF INFLATION TARGETING

## CHAPTER 8 INFLATION TARGETING AND A DEMOCRACY

During 1945 Jean-Paul Sartre gave a celebrated lecture[412] at the Club Maintenant in which he claimed that the starting point for his own existentialist philosophy was Ivan Karamazov's association of morality and religion in the formula: "If God does not exist, everything is permitted"[413] (Sartre, 1973 (1946): 33). Had Sartre been an economist he could (perhaps with more reason) have started from the formula: "If Gold[414] does not exist, everything is permitted," since economists of an earlier generation sometimes observed that the then prevalent support for the gold standard resembled a religious fear of monetary mismanagement by authorities[415]. Henry Simons provides a typical example in his seminal article on rules and authorities in central banking:

> "The worship of gold, among obviously sophisticated people...indicates how little progress liberals have made in showing, by way of answer to revolutionists, what kind of money-rules might be adopted to make capitalism a more workable system... To put our present problem as a paradox – we need to design and maintain with the greatest intelligence a monetary system good enough so that, hereafter, we may hold to it unrationally – on faith – as a religion, if you please" (Simons, 1936: 11-12, 13-14)

Behind this religious support for the gold standard lie the melancholy history of monetary mismanagement and an appreciation that the incentives of a monopolised fiat money system explain some of that history. The return to low inflation in many countries since the eighties, which has greatly added to the credibility of monetary authorities, has been associated with an untangling of this problem which Svensson, Houg, Haakon and Steigum (2002) summarised in

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412 *Existentialism and humanism.*

413 Though Dostoevsky evidently wished to explore this hypothesis in the Brothers Karamazov, Sartre's compact formula does not appear in that book (though Sartre attributes the formulation to Dostoevsky). The nearest equivalents in the Brothers Karamazov are: "...if you destroy the belief in immortality in mankind...everything would be permitted" (Dostoevsky, 1964: 82), "If God hadn't been invented, there'd be no civilisation" (Dostoevsky, 1964: 156).

414 In the sense of a fully backed commodity money, for example that prevailing under the gold standard.

415 The young Alan Greenspan once argued passionately that "...gold and economic freedom are inseparable..." because "...in the absence of the gold standard. There is no way to protect savings from confiscation through inflation. There is no safe store of value...gold stands in the way of this insidious process [inflationary financing of the government]. It stands as a protector of property rights" (Greenspan, 1966: 96, 101).

three points: define a clear goal for monetary policy, grant operational independence to the central bank in the pursuit of that target and hold the monetary authorities accountable for their performance.

The post-War history of politically controlled paper (fiat) money is a sombre tale, with episodes of spectacular hyperinflation amidst the more general erosion, in most countries, of money's purchasing power (see chapter 3). And democracy, so productive of virtuous policy in other spheres, seems not to have contributed to sensible monetary control. Indeed, the late Rudi Dornbusch's melancholy observation "...money is too serious to be left to politicians: in these matters there is no such thing as a responsible politician; democratic money is bad money" (Dornbusch, 1999: 15), has already been mentioned. The historical account in chapter 3 also mentioned the convergence, amongst central bankers as well as amongst academic economists, that low and stable inflation is the appropriate long run goal for monetary policy; but that this goal should be pursued with due care for the short-run effects of monetary policy on output and employment.

This chapter explores how the above-mentioned consensus has, in recent years, found expression in the mandate given to independent central banks[416,417]. And the latter was also mentioned in chapter 3, as the combined impact of the theoretical arguments and empirical evidence ultimately caused governments, in the words of Dornbusch (2000: 15), to "... retreat and formally give up their authority over central banks". The empirical basis for this retreat by government is summarised in section 8.1.

However, as monetary authorities gained the power yielded by governments, no check remained on the authority of the technocrats at the central banks. Whereas economists may be convinced, technically, of the merits of inflation targeting there are broader political issues at stake,

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416 Charles Goodhart (1994) summarised this necessary combination of central bank independence and an agreement on goals as follows: "...the current enthusiasm for independent CBs [central banks] rests importantly on general acceptance of the vertical longer-term Phillips curve; that there is no longer term trade-off to exploit; that the best sustainable outcome that the authorities can achieve through monetary policy is price stability...there does not seem to be room for disagreement on final goals if we are going to talk about independent central banks." This broad consensus on the goals of monetary policy which underpinned Buchanan's claim that "...issues in monetary policy can be resolved wholly into issues of means, not ends" is exceptional not only in macroeconomics, but in all aspects of social policy (Buchanan, 1989 [1962]). Nevertheless, the consensus is not quite universal as is clear from Ben Friedman's recent warning that the modern consensus risks an unjustifiable de-emphasis of other goals for monetary policy (Friedman, B.M., 2002).

417 For Buiter and Sibert (2000) consensus behind the mandate for pursuing low and stable inflation and the associated institutional reforms are connected with a shift in the political landscape since the seventies. Accordingly, they caution that "central banks can only retain their independence, and inflation will only remain subdued, for as long as this new [political] consensus endures" (Buiter and Sibert, 2000: 17-18).

including: the accountability of an independent inflation targeting central bank in a democratic society and the rationale for limiting the discretion of a powerful policy making institution.

These two issues translate broadly into the two general questions in political economy introduced in chapters 1 and 2, i.e. "who should rule?" and "how do we prevent the authorities from causing too much harm?" Section 8.2 explores the former and considers the implications of an independent central bank. The second question is considered in section 8.3 where Svensson et al.'s (2002) third point (accountability for the central bank) is considered. The institutional framework for monetary policy is used as an example throughout this chapter.

The argument in this chapter is that a strong political-philosophy argument can be made for limiting the discretion of the central bank in the manner implied by inflation targeting, in addition to the technical arguments used by economists and central bankers. If successful, this argument could address the concerns of an interdisciplinary audience about monetary policy in South Africa[418], as elsewhere[419].

## 8.1 THE TRACK RECORD OF INDEPENDENT CENTRAL BANKS

The introduction mentioned Dornbusch's (2000) argument that the history of government controlled fiat money suggests that there may be a systematic problem in the combination of the political process with the control of the money supply; and he is not alone in this conviction[420]. Further, that inference becomes all the more plausible when the post-War history of inflation is

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[418] The recently unfavourable inflation experience in South Africa has raised public concern about the appropriateness of inflation targeting for a developing country. Specifically, the concern has been that this framework for monetary policy limits the scope of government initiative unduly at a time when there are, in addition to inflation, also other important priorities for macroeconomic policy, such as the problem of pervasive unemployment. This dissertation has already mentioned the criticism of Michael Power (2002; 2003) according to whom inflation targeting is hopelessly misguided as a framework for monetary policy in a developing country.

Even the editor of the Business Day's editorial has argued that inflation targeting would "devastate the poor". Domestic monetary policy is typical – argued the editor – of South Africa's attempt at running a "cartoon city", i.e. "...a European economy in the poorest continent on earth" (Business Day, 2002).

[419] Public discontent with the narrow focus of monetary policy on price stability is not limited to South Africa. In a recent issue of the popular news magazine Time, Jennie James (2002: 45) mentions European "reformers" who argue that "...in a Europe moving toward more integrated markets and an equity based culture, the [European Central] bank should put a softer focus on inflation in favour of a broader economic outlook."

[420] Other eminent economists of similar persuasion include Robert Mundell (2000), Milton Friedman (1977), Stanley Fischer (1995b), Frederic Mishkin (2000c) and Larry Summers (1991).

contrasted with the relative price stability of the pre-War period where the gold-standard had effectively constrained the ability of governments to mismanage the money supply (see, for example, the historical account in Rolnick and Weber, 1997).

Chapter 3 traced the theoretical advances of recent decades that employed the insights of monetarist and public choice theories and that culminated with Kydland and Prescott's (1977) unsettling demonstration that a highly competent and benevolent monetary authority could produce sub-optimally high inflation, if given discretionary powers in the setting of monetary policy.

As was explained in chapter 3 the argument turns on the contrasting long and short run effects of monetary policy; while monetary policy can boost growth and employment in the short run, it cannot do so in the long run. Indeed, inflationary monetary policy is eventually growth debilitating in the long run[421] (Fischer, 1993). Three implications follow: first, if inflation is undesirable, monetary policy should aim at low inflation in the long run. Second, the monetary authorities have to be aware of the real impact of their policies in the short run, and finally there is a clear incentive for policymakers to try and exploit the short-run trade-off between money and employment (or, more generally, between nominal and real variables in the economic system).

Kydland and Prescott (1977) argued that given these features of the economy, the monetary authorities would have an incentive to renege on a low inflation commitment, even though that commitment was optimal *ex ante*, and no new information had been added to the policymaker's information set. These incentives undermine the credibility of a commitment to low inflation by the central bank. This theoretical problem, which has become known as dynamic or time inconsistency has greatly strengthened the case for separating the monetary authorities from the influences of in-period politics.

[421] This statement only refers to inflation, as deflation may be growth debilitating.

While the dynamic inconsistency hypothesis has provided the major theoretical support for central bank independence, there are also rival theories[422] that claim to account for the delegation of authority by politicians to technocrats at the central bank, including Eggertsson and Le Borgne's (2003) recent application of optimal contract theory (borrowed from corporate finance). They developed a theory of delegation to explain which policy decisions are likely to be taken by politicians in the process of in-period politics and which decisions will be devolved to technocrats at potentially independent institutions, such as a central bank.

Eggertsson and Le Borgne's (2003) theory starts with the observation that complex political tasks (such as interpreting the constitution, or setting the stance of monetary policy) are often devolved to officials with long term contracts not dependent on the government. The assumed background to the theory is in an environment where pecuniary incentives are "low powered"[423]. In such an environment (and central banks fit the stylised description, they argue), non-elected officials with long tenure will apply greater effort to discover and improve their ability at policy making through a process of experimentation than politicians who cannot afford the experimentation (lest an unfavourable outcome jeopardise their chances at the ballot box[424]). The more complex the policy environment, the more society would benefit from experimentation by the policy maker, and hence the greater the preference for technocrats over politicians[425].

While economists have been improving their theoretical understanding of inflationary biases and other reasons for central bank independence, central bankers and governments experimented with greater autonomy for the monetary authorities, most notably in West Germany and Switzerland, without (apparently) impairing economic growth. On the contrary, the economies of

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[422] The existence of rival theories for the development of central bank independence is important as it undermines the force of arguments by those (for example: Blinder, 1998; McCallum, 1995; and Posen, 1993) who find the standard theoretical explanation for central bank independence unpersuasive. Firstly, one may agree with Blinder (1998) that dynamic inconsistency is not important in practise without abandoning central bank independence at the same time. Secondly, one may agree with McCallum (1995) that contractarian solutions (such as inflation targeting) to the problems of central banking simply relocates the dynamic inconsistency problem from the central bank to the government, without thinking that this leaves central bank independence without rationale. Finally, the rival theory of Eggertsson and Le Borgne (2003) is consistent with Posen's (1993) argument that central bank independence is endogenous and jointly determined with low inflation in economies where the population has a high inflation aversion.

[423] That is, an environment where remuneration is not highly responsive to the performance of the office holder (Eggertsson, G. and Le Borgne, 2003).

[424] This theory draws on the work of, amongst others, Keller and Rady (1999) whom have studied optimal levels of experimentation.

[425] This "experimentation theory" of central bank independence is reminiscent of the philosophical arguments from critical realism for openness in the monetary policy regime advance in chapters 1 and 7.

both countries have flourished (Friedman, B.M., 2000). Yet, there was more to the benign inflation outcomes in Germany and Switzerland than the independence of their respective central banks[426] and by the middle to late eighties economists had begun investigating whether low inflation was generally associated with greater independence for monetary authorities.

These attempts at establishing the general effect (across a large set of countries, both developed and developing) of central bank independence on inflation and economic growth had to confront a daunting problem at the outset: how does one quantify a multi-dimensional and (partly) nebulous concept like central bank independence? [427] A thriving literature has since supplied an array of proxies, measures and indices of central bank independence and these have variously been plotted and regressed against inflation and growth outcomes (see Berger, De Haan and Eijffinger, 2000 for the most recent comprehensive review of this literature).

Despite considerable disagreement on the correct measure of central bank independence, the following dimensions are usually considered: Firstly, modern governments have both nationalised the issuance of currency and maintain a monopoly in that sector. Whatever the status of the central bank may be, that derives ultimately from and depends for its continuation on the political authorities. But government may (using legislation) choose to bind itself with respect to the management of the money supply, and so leave a sphere of control where the central bank has effective control (Cukierman, et al., 1992).

This introduces the first dimension of central bank independence, that is, the legal (or *de jure*) dimension. At stake here are the various legislative elements typically contained in a central bank law, such as the Reserve Bank Act of South Africa (Republic of South Africa, 1989). Legislation of this kind typically addresses at least some of the following issues (Cukierman, et al., 1992; Wessels, 2002): the mandate of the central bank; the appointment, tenure, employment security of the governor[428] and central bank board members; participation by government officials in

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[426] See for example the case studies in Bernanke et al. (1999). Further, other central banks with far less independence, for example the Bank of Japan, have not invariably succumbed to inflationary biases. Although, in the Japanese case the ministry of finance has an unusually strong anti-inflationary preference (Cukierman, Webb and Neyapti, 1992).

[427] This independence is not defined exclusively in opposition to the political process, but also for example, with respect to pressure from the financial markets. If a central bank was excessively concerned about market expectations of monetary policy, then the Bank could be drawn into a short-sighted policy decision. On this argument, financial markets are biased to short run decision making and the merit of a long run policy commitment by the central bank is precisely to insulate monetary policy from this overly short run perspective (Blinder, 1997b).

[428] That is to say, the circumstance under which the governor may be dismissed.

decisions at the central bank; participation of the governor or board members in other political or bureaucratic positions; government influence over the setting of monetary policy instruments; the responsibility for policy at the central bank; the manner of conflict resolution between the central bank and government (especially with the ministry of finance); and the various aspects of the government's financial policy where the central bank could be involved[429].

The legal dimension of central bank independence was the focus of the early literature on the cross country association between central bank independence and macroeconomic outcomes. Some examples from this literature include: Alesina and Summers (1993), Cukierman, et al. (1992), Grilli, et al. (1991b). These studies typically constructed an index of legal independence from an institutional analysis of the characteristics mentioned in the previous paragraph[430]. The cross country sample of these early studies rarely went beyond the industrialised economies.

The message from these early empirical studies was that central bank independence (as measured) was inversely related to the level and variability of inflation for developed countries[431]. Further, there did not appear to be any relationship between inflation and long growth, and hence none between central bank independence and long run growth[432]. The tentative conclusion of the early literature was that central bank independence offered improved monetary management, without exacting a cost in terms of growth[433] (Fischer, 1995a).

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[429] These channels include: advances (credit) to the government, securitised lending, preferential interest rate for government and the facilitating of primary debt issuance (Cukierman, et al., 1992).

[430] There is some controversy over these indices, as they are invariably subjective, often based on limited (or outright poor) data and constructed with a methodology that has been subjected to strong criticism by, notably, James Forder (1996). Forder's criticism is justified, but not his subsequent nihilism on the relevant econometric project as well as the case for central bank independence. Two counter observations should allow one to proceed, albeit cautiously, despite Forder's misgivings: firstly, the subjective indices of legal independence can be checked against objective measures of political interference such as the rate of turnover of central bank governors (as was done in Cukierman, et al., 1992). Secondly, the institutional arguments for central bank independence are not based exclusively on the empirical relationship between central bank independence indices and inflation. Rather, that correlation is corroborative support for a theoretical case, the validity of which is not itself destroyed by poor data.

[431] Figure 3.5 reproduces this result which Stanley Fischer (1995a) has called "...the single most impressive result in the CBI literature."

[432] See figures 3.6 and 3.7

[433] Indeed the opposite, an empirical literature has tentatively established an inverse relationship between growth and inflation (see, for example: Fischer, 1993), and thereby corroborated the second important monetary policy prediction of Milton Friedman (this time from his Nobel lecture, see: Friedman, M., 1977) about what he claimed would be the third stage in the development of the Phillips curve (see chapter 3).

By the mid-nineties a remarkable consensus had already emerged on the efficacy of central bank independence to aid the fight against inflation and so to contribute to long run economic growth too (de Gregorio, 1996). Central bank independence seemed to offer almost a "free lunch" in the words of Grilli, Masciandaro and Tabellini (1991b), in the form of lower inflation at no cost to economic growth (see also: Cukierman, 1994). Stanley Fischer captured the prevailing mood when he concluded that this consensus was sufficiently widespread as to merit inclusion in an updated "Washington Consensus" for the new millennium (Fischer, 1995b).

Even if there is broad agreement that central bank independence is a good thing though, it is not clear from these legal indices what the good thing consists of. Laws are, by necessity, incomplete and require interpretation; the gaps will be filled by tradition, legal interpretation and/or politics. Further, the rule of law may not always be binding, especially in developing countries where institutions often lack credibility, and this could undermine the central bank's ability to implement sound monetary policy (Maxfield, 1994). This introduces a second dimension to the central bank independence literature, that is: the actual (or *de facto*) independence of central banks (Ball, R., 1999; and Mas, 1995). These softer aspects of central bank independence are even less quantifiable, but studies like Cukierman et al. (1992) nevertheless tried to gauge the practise of central banks through surveys of actual central bank practise.

Cukierman et al.'s (1992) results were illuminating: in industrialised countries the index of central bank practise was significantly correlated with the legal independence index, but not so for the developing countries. Since their survey indicated that developing country central banks were mostly less independent than their counterparts in the industrialised world, it follows that the weak empirical relationship between inflation and *de jure* independence was (to a significant extent) due to *de facto* departures from the rue of law in those countries. This conclusion was confirmed by using the actual turnover of central bank governors as a proxy for independence[434]. This rate of turnover was found to be significantly and positively correlated with inflation in the developing world[435] (Cukierman, et al., 1992).

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[434] For example, according to legislation the governor of the central bank in Argentina has a term of four years. But since the War the practise has been that the governor would resign when there is a change of government (or finance minister). Consequently governors served on average for about 1 year during the period 1950 to 1989 (Cukierman, et al., 1992).

[435] Sikken and de Haan (1998) found a significant positive correlation between the turnover rate of central governors (as a proxy for the *de facto* central bank independence) and the monetisation of fiscal deficits, which is consistent with the positive correlation between inflation and the turnover rate of central bank governors found in Cukierman, et al. (1992). See also Fry (1998) for alternative empirical evidence that fiscal dominance of monetary policy is inversely related to the independence of the central bank. These results are consistent with Fischer's (1995a) theoretical argument that central bank independence involves freedom for the monetary authorities from obligations to finance the government's expenditure, either directly or indirectly.

In an interesting recent study of central bank independence in the countries-in-transition Cukierman, Miller and Neyapti (2002) strengthened the consensus on the importance of central bank independence. These economies have moved very far along the scale of legal independence for the monetary authorities, partly to build credibility in countries which had only recently introduced a national currency[436].

Amongst Cukierman, Miller and Neyapti's (2002) more important results is the growing awareness that central bank independence is but one institution (albeit a very important one) in the institutional matrix, all of which jointly contribute to stable prices and economic growth (see Ball, R., 1999; and Mas, 1995 for similar arguments). Indeed it is not surprising that the institutional "matching" that is important across the spectrum of institutions (see chapter 1) would also be critical for central bank independence. For example, in the economies-in-transition central bank independence was not itself sufficient to contain the inflationary pressures in the immediate aftermath of price-deregulation[437]. In the words of Cukierman, et al. (2002):

> "...such independence is instrumental in reducing inflation only when the other structural features of the economy have become sufficiently and persistently similar to those of developed market economies...these findings are consistent with the view that the legal CBI, no matter how high, cannot contain the powerful inflationary impacts of price decontrols and of the liberalisation of foreign trade and of the exchange rate. But once the process of liberalisation has gone far enough legal independence turns out to be effective in slowing inflation down" (Cukierman, et al., 2002: 250, 255)

Cukierman et al. (2002) conjectured that this threshold effect may be due to a positive relationship between law abidance and liberalisation, in society generally and by its agents at the central bank[438]. This issue is taken up again in chapter 9 which examines the relationship between inflation targeting and the rule of law.

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[436] However, Cukierman et al. (2002) also concluded that the *de facto* central bank independence in the economies-in-transition does not always reach the heights codified in their legislation.

[437] It is even possible that central bank independence could be harmful for a stylised economy with a particularly unfortunate institutional or policy mix (Borrero, 2001).

[438] The idea of a threshold of institutional reform beyond which the negative relationship between inflation and central bank independence emerges is supported by the negative relationship between inflation and the cumulative index of liberalisation in de Melo, Denizer and Gelb (1996).

The empirical results in Cukierman et al. (2002) offer support for theoretical arguments, developed through the course of the nineties, arguing that the efficacy of central bank independence cannot be considered in isolation from the broader macroeconomic and institutional framework (see for example Beddies, 2000; and Forder, 1998). Whereas Cukierman et al. (2002) argue this case with respect to liberalisation, Posen (1998b) does the same for fiscal profligacy[439] as indeed Mas (1995) had done earlier from an explicitly developing country perspective.

While the usual conception of central bank independence is negative (concerning a sphere of influence free from government intervention) the fiscal concerns raised in the last paragraph introduce a "positive" dimension of central bank independence, that is the ability of the central bank to influence government in the direction of, say, prudent fiscal policy. To avoid conceptual confusion Maxfield (1994) has emphasised that these positive considerations are about power, not independence[440]. She supported this claim with empirical case-studies of developing country central banks.

In their recent review of the literature on central bank independence Berger et al. (2000) acknowledge the following criticisms against the empirical literature that hoped to demonstrate the inflation-reducing power of central bank independence: firstly, the various indices of *de jure* central bank independence have different interpretations and yield different rankings; secondly, the indices of central bank independence are often subjective, noisy and incomplete; thirdly, a correlation between central bank independence and inflation does not establish causality and may be due to a third factor[441] (for example, the choice of an exchange rate regime).

However these criticisms are not fatal to the basic contention of this section, that is: in a favourable institutional setting (including a complementary macroeconomic policy mix) central bank independence contributes significantly to lowering the level and variability of inflation. Further, a number of indices ought to be considered in practise before judging the independence

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439 Though Posen (1998b) did not link his argument to the earlier work by Sargent and Wallace (1981), his is another example of the latter's "unpleasant monetarist arithmetic" whereby monetary authorities (independent or otherwise) cannot credibly commit to low inflation in the face of profligate fiscal policy.

440 "Everything is what it is: liberty is liberty, not equality or fairness or justice or culture, or human happiness or a quiet conscience" as Berlin (1998 [1958]: 197) argued, and so too is central bank independence the institutional freedom from interference in the pursuit of its goals, not the power to coerce government to follow suit.

441 Berger et al. (2000) found little empirical support for this claim.

of central banks, which partly addresses the second concern raised above[442]. However, the consensus has been weakened on one point, that is Berger et al. (2000) found little consensus on the real output (and employment) effect of central bank independence, especially in the new literature that incorporates various degrees of labour market centralisation in monetary policy models[443].

To summarise, the case for central bank independence is compelling and informed by what Fischer (1995a) called "... a growing body of empirical evidence, by recent developments in economic theory, and by the tempter of the times." Consequently, the independence of the SARB is an institutional issue of the first order and the next sub-section offers an institutional discussion of the SARB's independence as well as an empirical grading using two of the *de jure* indices mentioned above.

### *8.1.1 Rating the SARB's independence*

In South Africa the Governor and Deputy Governors of the SARB are executive appointments by the President (in consultation with the SARB's Board and the Minister of Finance). The Governor and Deputy Governors serve for renewable 5 year terms. Though Wessels (2002) correctly observes that this term of office is shorter than, for example, that of the senior office bearers at the European Central Bank (with terms of 8 years), the more important difference on this issue is that in contrast with the ECB, SARB Governor and Deputy Governors can be re-appointed. This opens a channel for political influence at the SARB which is expressly closed at the ECB. Nevertheless, the SARB's daily management is protected from direct participation by government officials by the prohibition on members of parliament (or provincial legislature) or ministers (or deputy ministers) to serve as a Governor or on the Board of the SARB[444] (Wessels, 2002).

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[442] Berger et al.'s (2000: 37) conclusion in this regard is that: "...legal indicators are noisy, but useful indicators and researchers should not base their analysis on just one indicator."

[443] Berger et al. (2000) attributed this uncertainty to the widely differing data sets and econometric techniques used to date. A consolidation of the data as well as econometric attention to matters such as model uncertainty and robustness are required to resolve this pressing issue.

[444] Wessels (2002) raised concern that since government appoints 7 of the 14 directors of the SARB, government has disproportionate influence on decisions in the upper echelons of the SARB.

Since March 2000 the SARB has had an explicit inflation target as its general targeting rule. This is a formalisation of the more general requirement in the Final Constitution that the SARB must be allowed to pursue the goal of financial stability[445] without interference by government or other pressure groups (Republic of South Africa, 1996: par. 224). Inflation targeting also gives particular content to the primary objective of the SARB as described in the South African Reserve Bank Act which required the SARB to: "...protect the value of the currency (of the Republic) in the interest of balanced and sustainable economic growth..." (Republic of South Africa, 1989: section 3). It is clear from the Reserve Bank Act that the general targeting rule is not a narrow focus on low inflation to the exclusion of other considerations. Indeed, governor Mboweni (1999: 403) has rejected the "dogmatic" pursuit of low inflation, and inflation targeting in South Africa as elsewhere can be described as flexible[446] (see the argument in chapter 5).

This formalisation of the general targeting rule has raised the *de jure* independence of the SARB considerably (using an index such as that of Cukierman, Webb and Neyapti). Where the specific targeting rule is concerned the SARB has full independence to set the instruments of monetary policy (Republic of South Africa, 1989: section 10(2)). The Final Constitution concurs when in section 224(2) it requires the SARB to pursue its primary objective without "fear, favour or prejudice" (Republic of South Africa, 1996 section 224(2)). In summary, Wessels (2002) has aptly described the SARB as goal dependent and instrument independent[447,448].

Though the advent of inflation targeting has also seen the creation of a monetary policy committee that jointly determines the stance of monetary policy, the responsibility for the stance of policy remains with the Governor of the SARB. Wessels's (2002) argument that responsibility for monetary policy decisions has subsequently shifted to the MPC is premature though[449]. Whereas the SARB's MPC undoubtedly contributes to the policy decision, the Reserve Bank Act holds the Governor of the SARB accountable for the stance of policy (Republic of South Africa, 1989: section 31).

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[445] Financial stability was understood to have two components: stable price and the stability of the financial sector (Mboweni, 2000b).

[446] That is to say the general targeting rule includes not only the inflation target, but (at least) also concern for output volatility.

[447] The distinction between goal and instrument independence is discussed in section 8.2.

[448] The SARB implements monetary policy through the use of market-based instrument such as the repurchase rate, even though the Bank is not prohibited from using direct policy instruments such as quantitative controls.

[449] Wessels (2002) may be anticipating institutional reform in South Africa that would transform the MPC into the decision making body of the SARB, as has already happened at the Bank of England and Swedish Riksbank (Svensson, et al., 2002).

This locus on responsibility on the governor has a host of implications for the accountability of the decision making structure of the SARB. Unlike the Bank of England, where the members of the MPC can be held individually accountable (and hence their votes are recorded and published) the SARB's MPC members are neither individually nor collectively accountable. Instead the governor is accountable to government for the manner in which the SARB exercises its instrument independence[450].

Instrument independence requires more than the freedom for the monetary authorities to set the stance of monetary policy instruments, though. An additional requirement is that monetary policy should be free from actual or potential fiscal dominance. Indeed, the central bank will not be able to set its policy interest rates without interference if the government's financial policy is given priority in the MPC's deliberations[451].

If government can force the Bank to extend credit, or otherwise finance government expenditure, this would curtail the ability of the Bank to train monetary policy instrument on their general targeting rule. Financial support for the government is a matter of degree though, and (unlike the ECB) the SARB does provide some financial services to the government: the SARB acts as banker for the government[452], and also as agent for the government in the primary market for government securities (Wessels, 2002).

However, there are definite limits to the financial assistance that the SARB may give government (Republic of South Africa, 1989: par. 13f) and these limits will prevent the SARB from being forced into monetising the national debt. Finally, the SARB is required to share a part of its surplus with the government, but not to an extent that would make the SARB financially dependent on the government (Jonsson, 1999; Republic of South Africa, 1989: section 24; and Wessels, 2002).

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450 These observations do not change the arguments (formulated in chapter 7) for greater individual accountability at the SARB, for recorded and published votes, and for published minutes of the meetings. It does, however, imply that the burden of change lies not with the SARB, but with government, and ultimately with Parliament to amend the Reserve Bank Act, and allow accountability to be spread more widely at the MPC.

451 This is not to say that monetary policy and the government's financial policy should be inconsistent. Rather, if instrument independence is granted to the central bank, then the responsibility falls on government to set its financial policy in harmony with monetary policy regime.

452 Though no longer exclusively.

From the discussion above it follows that the SARB enjoys substantial legal independence. This is confirmed by the SARB's score of 3 out of a possible 5 on the "updated Eijffinger-Schaling" test for Central Bank independence[453]. This result is compared in table 8.1 with the scores of the 16 mainly industrialised country central banks[454] listed in de Haan, Amtenbrink and Eijffinger (1998).

*Table 8.1* *Score on the updated Eijffinger-Schaling test for Central Bank independence*[455]

| SARB | Industrialised countries | | |
|---|---|---|---|
| | Mean | Median | Standard deviation |
| 3 | 3.19 | 3 | 1.28 |

The result in table 8.1 is confirmed by the result in table 8.2 where the SARB's legal independence was given an adjusted score of 0.55 on the Cukierman-Webb-Neyapti legal independence index[456] and which is well above the mean for the wide set of 72 industrialised and developing countries rated in Cukierman, Webb and Neyapti (1992).

*Table 8.2* *Score on the Cukierman-Webb-Neyapti legal independence index*

| SARB | Industrialised and developing countries | | |
|---|---|---|---|
| | Mean | Median | Standard deviation |
| 0.55 | 0.34 | 0.335 | 0.12 |

However the results in tables 8.1 and 8.2 are both more sanguine about the *de jure* independence of the SARB than was Cukierman, Webb and Neyapti (1992) at the end of the eighties[457] and Wessels (2002) in his recent comparison of independence at the SARB and the ECB.

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[453] See Appendix 8.1 for how the test was applied to the South African case.

[454] The central banks evaluated in de Haan et al. (1998) are those of : Australia, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, New Zealand, Spain, Sweden, Switzerland, UK, USA and the European Central Bank.

[455] Table 8.1 is from du Plessis (2002a).

[456] This remains the most comprehensive index of *de jure* central bank independence. Rival indices, such as those by Eijffinger and Schaling (1993), Grilli, Masciandaro and Tabellini (1991b) and Alesina (1989) are mostly subsets (or can be approximated by subsets) of the Cukierman-Webb-Neyapti index (Cukierman, et al., 2002).

[457] Cukierman, Webb and Neyapti (1992) rated the SARB's legal independence below average at 0.25.

The contrast with Wessels (2002) is easily explained as the combined result of his binary and unweighted scoring system, compared with the more subtle and weighted index of Cukierman, Webb and Neyapti (1992). However, the contrast with Cukierman et al.'s (1992) own evaluation of SARB's legal independence takes a little more explaining. One part of the discrepancy is explained by local developments subsequent to the publication of Cukierman et al.'s (1992) article: for example, the adoption of an explicit inflation target added a substantial 0.12 to the SARB's score, and that alone would have moved the SARB to the upper half of the distribution. Further, Cukierman et al. (1992) did not always reflect the SARB's institutions accurately: for example, they did not give credit for the SARB's instrument independence, the correction of which adds another 0.083 to the SARB's score.

The SARB's adjusted score on the Cukierman-Webb-Neyapti score is consistent with the survey of central bank practise in Cukierman et al. (1992) which was intended to gauge the *de facto* independence of central banks. According to their survey the SARB enjoyed above average *de facto* independence amongst the 23 industrialised and developing countries surveyed. By implication, both the *de facto* and *de jure* the quantitative indices for central bank independence points to substantive independence for the SARB, especially where the stance of monetary policy is concerned[458].

## 8.2 THE "DEMOCRATIC DEFICIT" OF INDEPENDENT CENTRAL BANKS

One of the strongest arguments in favour of inflation targeting as a framework for monetary policy is the promise of a solution to one of the most vexing problems of modern monetary economics, i.e.: whilst the proficiency of an independent central bank in its pursuit of low and stable inflation is accepted, the limits on what Stanley Fischer (1995b: 4) called the "potentially enormous power" of a independent central bank remains undefined[459] (see also, Faust, 1996; Freedman, 1993).

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[458] As an unintended consequence, this sub-section seems to have cleared up a minor puzzle regarding the SARB's legal independence, that is, the apparent modest degree of legal independence revealed by indices such as those published in Wessels (2002) or Cukierman et al. (1992) which contrasts with institutional studies that regard the SARB as enjoying significant independence (Jonsson, 1999).

[459] The legitimacy of the central bank's authority, which typically derives from an act of a parliament and, thereby, from the democratic process is not at stake. Rather, the tension is about holding the central bank to public account. It is not Popper's (1966a) first question ("Who should rule?), but his second ("how do we prevent the rules from doing too much harm?") which underlies the "democratic deficit."

A decade ago (as the academic enthusiasm for independent central banks was spreading) Charles Freedman cautioned that "while considerable attention has been devoted to responsibility or independence [of the central bank], there has been less focus on accountability. Yet in a democratic society such accountability is critical[460]. Moreover, on the surface, at least, there can be a 'tension' between the mechanisms needed to ensure the accountability of the central bank to government or parliament and the ability of the central bank to carry out its responsibility as an institution somewhat apart from government" (Freedman, 1993 92). This tension has elsewhere been called the "democratic deficit" of independent central banks[461] (Briault, Haldane and King, 1996).

Is there perhaps a way to match the technical advantages[462] of having an independent central bank with the political requirements of a democratic society?[463] Proponents of inflation targeting answer in the affirmative (for example, Brash, 1996; Friedman, B.M., 2000; and Mishkin, 2000a). But there are prominent dissenting voices, like Ben Friedman (2002), who emphasises the apparent problems of inflation targeting in a democratic society. Friedman's argument is two-pronged: firstly, inflation targeting enforces a vocabulary in the discussion of monetary policy that excludes concerns for the real outcomes (growth and employment) and, secondly, it uses a framework that hides from the public the central bank's actual concern for real outcomes[464].

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[460] The principle of delegating decision-making authority lies at the centre of any representative democracy. The crucial question is one of accountability, that is, of holding the central bank to account, just as the members of parliament are held to account. For Karl Popper, for example, the power to appoint a central bank governor would have been less important than the ability to remove her (or not re-appoint her) had monetary policy been demonstrably poor (Popper, 1997). Such a feedback mechanism requires a high degree of openness to establish accountability by the central banker.

[461] This tension is one of the two central themes of modern central banking for Stanley Fischer (1995b), the other being the tension of the divergent long and short impact of monetary policy which creates the inflation biases explored in chapters 3 and 4.

[462] Inflation targeting provides a mechanism for creating accountability by the independent monetary authorities. And accountability contributes crucially to resolving the principal-agent problem of central banking, (as was argued in chapter 7). By facilitating the accountability of an independent central bank, inflation targeting contributes importantly to the efficiency of the monetary policy regime (Fischer, 1995a). This contribution to the efficiency of monetary policy is a second major reason for requiring an accountable central bank, the other being the democratic deficit which is the subject of this section.

[463] Jon Faust (1996) observed that there are other seemingly fundamental institutions in the modern capitalist economy which seem at odds with the democratic principle, including the presumption against public debt relief. These are only in conflict with a view of democracy in which debt relief, for example, is a legitimate matter of disagreement. This is not the view of democracy accepted in this dissertation, where the rule of law as a solution to the paradox of power takes a central position. Where the rule of law is upheld, there is no legitimate disagreement on the obligation of a solvent state towards its creditors. As argued in chapter 2, this view is inconsistent with an alternative vision of democracy - which Acton (2000: 14-15) attributed to Rousseau - that is, "that the people are infallible."

[464] The substance of these arguments has been dealt with in chapter 7 (section 7.3.1.1).

Joseph Stiglitz was more emphatic still in his recent denouncement of independent central banks. A rather long extract from Stiglitz (2003) is quoted in full, below, since it captures the content of an opinion that (though admittedly extreme) arrives with the prestige of its patron's celebrity:

> "An independent central bank focused exclusively on price stability has become a central part of the mantra of "economic reform". Like so many other policy maxims, it has been repeated often enough that it has come to be believed...
>
> Technocrats and financial market players who benefit from this institutional arrangement [CBI] have done an impressive job of convincing many countries of its virtues, and of the need to treat monetary policy as a technical matter that should be put above politics. That might be the case if all that central bankers did was, say, choose computer software for clearing payments.
>
> But central banks make decisions that affect every aspect of society, including rates of economic growth and unemployment. *Because there are trade-offs, these decisions can only be made as part of a political process.*
>
> In many new democracies, citizens are bewildered. The virtues of the new regime are first praised, but then they are told the macroeconomic policy decisions about which they care most are too important to be left to democratic processes. Citizens are warned against the risks of populism (meaning the will of the people?)." (Stiglitz, 2003: 11, my emphasis)

The next section explores the consistency between an independent inflation targeting central bank and a representative democracy. Contra Stiglitz, this discussion will show how the delegation of authority for setting monetary policy is familiar territory for a democracy. Ironically, Stiglitz is in sympathy with Milton Friedman (1982) in this criticism of central bank independence. Friedman's (1982) argument is clear (though contentious), that is: he is unconvinced of the principle of accountable delegation, and so argues for political control of the central bank, constrained by a fixed-parameter rule. But this is not the route taken by Stiglitz: leaving aside the appeals to conspiracy by the financial sector (which he also advanced in: Stiglitz, 2002), it is unclear why Stiglitz (who has contributed much to the development of principal-agent models) accepts the mechanism of delegating authority (and giving it discretion) in the case of an accountable parliament, but rejects the extension of that logic to monetary policy.

## 8.3 HOLDING AN INDEPENDENT CENTRAL BANK ACCOUNTABLE

To solve the democratic deficit a mechanism is required to ensure accountability (in some sense) of the central bank, without undermining the very reasons for making the Bank independent in

the first place (Cukierman, 2002). The principal-agent literature has proved useful in untangling this problem: accordingly an accountable agent is one that is held responsible for her actions; an obligation which specifies certain penalties should the agent fail in the duties to which she has agreed (Becker, 1965). For inflation targeting to be incentive compatible with low inflation monetary policy over time the incentive structure of the policy regime requires painstaking design, as per the discussion in chapter 7. The subsequent (implicit or explicit) contract with the central bank should create an agreement between society and the central bank in such a way that it is in the interest of the central bank to produce the desired outcome.

Chapter 7 mentioned Stanley Fischer's summary of the principal-agent solution to the central banker's problem: "in a well-defined sense, the central-banker in the principal-agent framework is held *accountable* for the outcome of monetary policy, in that there are definite consequences of failing to achieve well-defined goals" (Fischer, 1995a 202, emphasis in the original). The principal-agent solution to the central banker's problem is, therefore, to define clear goals for the central bank, to grant it requisite power in the pursuit of that goal and to hold the Bank accountable for achieving those goals (Fischer, 1999).

Fischer's summary of the principal-agent solution matches the three aspects of accountability for independent central banks identified by de Haan et al. (1998): ultimate objectives, transparency and final responsibility. These are considered, in turn, below. At each point, the discussion is extended to the present inflation targeting framework for monetary policy in South Africa. The underlying argument is that inflation targeting creates an institutional framework that achieves precisely such accountability as would solve both the principal-agent and democratic deficit problems of an independent central bank[465]. The extent to which the SARB's present inflation targeting regime falls short of this, compromises both those goals[466].

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[465] The anticipated resolution of the democratic deficit is a major reason for Goodfriend's (2003) recommendation that the USA adopts explicit inflation targeting following the retirement of Dr Greenspan.

[466] The application of Masson et al.'s (1997) test for the comprehensiveness of an inflation targeting regime in chapter 7 yielded a score of 66% for the present design of the SARB's inflation target. In the ensuing discussion we will see that this deficit is due mainly to shortcomings in the transparency and final responsibility for monetary policy.

### *8.3.1 Ultimate objectives*

A first step in resolving the democratic deficit of independent central banks is to distinguish between two concepts of central bank independence: goal independence and instrument (or operational) independence[467]. Goal independence occurs where the government leaves it to the central bank to set the goal for monetary policy. In the terminology of chapter 4 a goal independent central bank can design its general targeting rule. Instrument independence refers to the unimpeded ability of the central bank to use the instruments of monetary policy (usually short term interest rates) given the goals of monetary policy[468] (Fischer, 1995a). Again in the terminology of chapter 4 an instrument independent central bank can design its own specific targeting rule[469]. Whereas it is possible for a central bank to have both goal and instrument independence, it is possible (and more frequently encountered) to have a central bank with instrument independence while the government sets the goal(s) of monetary policy (Friedman, B.M., 2000).

Principal-agent models have contributed to our understanding of how this distinction between goal and instrument independence contributes to the solution of the "democratic deficit". Principal-agent problems only arise when institutions matter, that is when transaction costs are positive. Economists have always recognised that these transactions costs are amongst the most important reasons for paying careful attention to the design of monetary policy regimes (see chapter 1). The case for an independent central bank implies the recognition by government that careful design of incentives is required "to induce behaviour by that agency [the central bank] that it [the government] cannot commit itself to deliver" (Buiter and Sibert, 2000: 2).

Using the principal-agent terminology, society is the principal, accomplishing its collective goals *inter alia* through the democratic political process. This principal defines the goal(s) for monetary policy to reflect the interests of society (Buiter, 1998), at least that is the contention behind the

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467 See the seminal contribution by Debelle and Fischer (1994).

468 Fischer (1995b) has argued that a central bank with a strict monetary policy rule like a currency board (or a strict money growth rule) has no instrument independence. Such strict rules do not so much solve the question of the democratic deficit of independent central banks; rather they eliminate the question.

469 The above mentioned ability to set the stance of monetary policy by an instrument independent central bank implies both the absence of fiscal dominance and independence for the policy committee from government influence (Svensson, et al., 2002).

claim of democratic legitimacy for the policy goals[470] (De Haan, et al., 1998). Typically these goals will be summarised in the general targeting rule of the monetary policy regime[471]. With the goals of principal and agent aligned, the agent is then given instrument independence to pursue the goals[472]. However, the agent is held accountable for the outcome of monetary policy relative to the goals set by the principal. Indeed, the need for accountability rises with the extent of responsibility devolved to the central bank (Agénor, 2000b; Freedman, 1993; and Paulin, 2000). For Fischer the most important conclusion in the literature on central bank independence followed from this solution to the principal-agent problem, that is: "...that a central bank *should* have instrument independence, but *should not* have goal independence" (Fischer, 1995a: 202, emphasis in the original).

There is a wide array of incentive-contracts which could be used to this end, including: the career prospects of the central banker, public embarrassment, public hearings and so on (as mentioned in chapter 7). However, all of these incentive contracts require that the ultimate objectives of monetary policy be clearly described. A vague, and uninterpreted, ultimate objective hands the goal independence back to the central bank (De Haan, et al., 1998). Inflation targeting gives content to the ultimate objective of monetary policy - often vague reference to price stability, as per the Reserve Bank Act of South Africa (Republic of South Africa, 1989) - and in this way meets the first requirement of an accountable monetary policy (Agénor, 2000b).

On the accountability test of de Haan et al. (1998) the SARB scores a respectable 3 out of a possible 4 with respect to ultimate objectives[473]. Table 8.3 compares the SARB's score with that of the 16 Central Banks from developed countries listed in de Haan et al. (1998). Evidently, the SARB has a high degree of accountability where the ultimate objectives of monetary policy are concerned.

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[470] This is, generally, a false proposition as shown by the impossibility theorems of Arrow and Sen. However, it is true for a subset of goals which satisfy the Wicksell-Pareto criteria. The next chapter argues that the goals of flexible inflation targeting fall within that subset.

[471] An interesting result from Mishkin and Schmidt-Hebbel's (2001) empirical investigation into the factors that affect the adoption of inflation targeting is that goal independence at central banks shows an inverse association with inflation targeting. It seems that goal independent central banks prefer to choose alternative nominal anchors (like money targets).

[472] At the same time the principal has explicitly or implicitly agreed to manage the rest of macroeconomic policy, especially fiscal, financial and exchange rate police in harmony with the nominal anchor.

[473] See Appendix 8.2 for how the test was applied to the South African case.

*Table 8.3* *Score on de Haan et al's test for accountability (ultimate objectives)*[474]

| SARB | Industrialised countries | | |
|---|---|---|---|
| | Mean | Median | Standard deviation |
| 3 | 1.625 | 1 | 1.36 |

Finally, the most recent empirical investigation of the trade-off between inflation and unemployment in South Africa yielded ambiguous empirical results, finding little association between unemployment and inflation, but evidence of a short run trade-off between growth and inflation (Hodge, 2002). Nevertheless, Hodge was able to conclude that there were structural causes for rising unemployment domestically "...discretionary monetary and fiscal policies used to boost aggregate demand are unlikely to have much success in creating jobs" (Hodge, 2002: 443-444). This conclusion supports the ultimate goals of inflation targeting against critics[475] who wish to use monetary policy as a tool for job creation.

### *8.3.2 Transparency*

Transparency requires that the incentive contract of the monetary authorities contain some goals in the public domain which can be monitored by the public and by the government, in particular (Brash, 1996; Buiter, 1998; and Paulin, 2000). A fixed nominal exchange rate and a target value for consumer-price inflation are examples of such transparent goals.

The agreement between principal and agent would be complete at this point if we were happy to limit monetary policy to a stark rule, like a fixed nominal exchange rate. But that is the same as abdicating monetary policy altogether and (as was argued in chapter 4) is generally sub-optimal. In practise, the relevant agreement is one where there is some rule-like agreement between the

[474] Table 8.3 is from du Plessis (2002a).

[475] For example, the 'The People's Budget Coalition' - a coalition consisting of the congress of SA Trade Unions (COSATO), SA Council of churches and the SA Nongovernmental Organisation Coalition (Sangoco) – have repeatedly argued that inflation targeting is the wrong goal for monetary policy. Rather, they argue, that monetary policy should pursue a goal of lowering unemployment and fighting poverty (Petros, 2002).

government and the central banker of the type (described as contingent rules in chapter 4) and of which a forecast target for inflation is an example[476].

As was argued in chapter 4, an important reason for preferring contingent plans is the existence of a control lag in monetary policy which prejudices the design against both rigid rules and discretion. This control problem needs to be incorporated in the institutional design that solves the relevant principal-agent problem for credible and yet flexible monetary policy. In other words, the central bank can only be held accountable relative to a target that depends on the state of the world, i.e. a contingent or conditional target (Persson and Tabellini, 1993; and Walsh, 1995).

At the same time the contingent plan defines the discretion of the central bank as the deviation of the policy stance with respect to the plan at any point in time. Clearly, this distinction between the policy (the contingent plan) and the stance of policy at every point in time requires careful explanation to the public (and the government) in order that the Bank may be accountable for the way it uses its instrument independence.

Once the contingent rule has been defined, a number of institutional arrangements are required to ensure the transparency, openness and credibility of the plan (King, M.A., 1997; and Mishkin, 2000a). The five steps conventionally seen as minimum requirements for a fully-fledged inflation targeting regime were discussed in chapter 5, that is: announcing an explicit quantitative target for future inflation; a clear commitment by government and the central bank to the priority of the target; an information rich forecasting methodology; a specific targeting rule to drive the policy signals and, finally, an in depth communications strategy (Bernanke, et al., 1999; Eichengreen, 2002; King, M.A., 1997; and Masson, et al., 1997). The institutional details of these requirements are of the greatest importance in practice; the transparency dimension of accountability is either achieved substantively, or not at all.

The formal characteristics of inflation targeting in South Africa suggests a fair degree of transparency, which should contribute greatly to the accountability of the SARB. On the accountability test of de Haan et al. (1998) the SARB scores 1.5 of a possible 3 with respect to

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[476] The exceptions are those countries with very hard pegs, like currency boards or dollarisation on the one hand or those countries without an explicit nominal anchor on the other. These stark rules are relevant, and may even be preferable for countries where the monetary authorities lack credibility to a very great extent.

transparency[477]. Table 8.4 compares the SARB's score with that of the 16 Central Banks from developed countries listed in de Haan et al. (1998)[478].

*Table 8.4* *Score on de Haan et al's test for accountability (transparency)*[479]

| SARB | Industrialised countries | | |
|---|---|---|---|
| | Mean | Median | Standard deviation |
| 1.5 | 1.25 | 1 | 1 |

### *8.3.3 Final responsibility*

Given instrument independence the bank has to design institutions to make policy decisions that implement the policy rule. Under inflation targeting these institutions often include an MPC composed of central bank staff and, sometimes, independent experts, or representatives of various sectors or interest groups. The composition of this committee was discussed at length in chapter 7.

Whereas the manner of appointment, the tenure of governors and MPC members and the possibility of re-appointment are so many dimensions of the *de jure* independence of a monetary authority, they also provide an important measure of *de facto* independence of central banks. As mentioned above (in section 8.1) Cukierman, Webb and Neyapti (1992) argued that a gap between actual and legal independence arises because of vagueness in many central bank laws, and these gaps are filled with local traditions and interpretation. They found that the actual turnover of central bank governors was a more accurate index of the *de facto* independence of central banks in countries where the legal independence is either vague, or the rule of law, weak.

On the accountability test of de Haan et al. (1998) the SARB presently scores 2 out of a possible 5 with respect to final responsibility[480]. Table 8.5 compares the SARB's score with that of the 16 central banks from developed countries listed in de Haan et al. (1998).

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[477] See Appendix 8.2 for how the test was applied to the South African case.

[478] This test is somewhat misleading though: many of the transparency measures are questions of degree, and as was argued in chapter 7 there is room for improvement on the SARB's communications strategy, especially where the communication of the specific targeting rule is concerned.

[479] Table 8.4 is from du Plessis (2002a).

*Table 8.5* *Score on de Haan et al's test for accountability (final responsibility)*[481]

| SARB | Industrialised countries | | |
|---|---|---|---|
| | Mean | Median | Standard deviation |
| 2 | 2.75 | 3 | 1.39 |

Some shortcomings of the present design of the MPC were discussed in chapter 7 and others above. In summary the institutions of the MPC do not guarantee substantively independent contributions on the MPC, and this undermines the openness and, therefore, the rationality of the institutional design[482].

The present institutional design compromises to an extent both the independence and the accountability of the MPC. Indeed Governor Mboweni has himself listed the following requirement for an efficient institutional framework to effect Central Bank independence: "personal independence, which covers the selection and appointment of Board members with a high professional competence and without an obligation to yield to political and other pressures" (Mboweni, 2000a 4). Presently, the MPC does not match the very standards for personal independence proposed by the Governor.

Society is not just concerned with isolating the day-to-day operations of the SARB from political interference; though, that is important, too. There is also a legitimate desire to hold the monetary authorities accountable in their important task. Despite the many public appearances of MPC members, the Monetary Policy forums, the Governor's annual address to the Bank's shareholders, appearances before the Parliamentary Portfolio Committee on Finance, or the Bi-

[480] See Appendix 8.2 for the test and the scoring.

[481] Table 8.5 is from du Plessis (2002a).

[482] It would not be much comfort if the present MPC members gave assurance (even credible assurance) that the discussion was presently highly critical and open and competitive. The concern in institutional design is not merely to ensure favourable outcomes when the authorities behave benevolently, but also, and sometimes more so, to limit the impact of mistakes, incompetence or malice; as James Madison wrote in the 10th Federalist Paper: "It is vain to say, that enlightened statesmen will be able to adjust these clashing interests, and render them all subservient to the public good. Enlightened statesmen will not always be at the helm…the inference to what we are brought, is, that the causes of faction cannot be removed; and the relief is only to be sought in the means of controlling its effects" (Madison, 1961). Elsewhere, he argued even more poetically: "If men were angels, no government would be necessary. If angels were to govern men, neither external nor internal controls on government would be necessary. In framing a government which is to be administered by men over men, the great difficulty lies in this: you must first enable government to control the governed; and in the next place oblige it to control itself" (quoted in: Persson, Gerard and Tabellini, 1997).

annual Monetary Policy Review, there is much room for increasing the substantive accountability of the MPC. For example, the monetary policy statement and monetary review could be matched with the stance of policy one a one-to-one basis. Other complementary institutional reforms in this direction have been discussed in chapter 7.

Nevertheless, the existing institutional design of inflation targeting in South Africa solves the democratic deficit to a large extent. The citizen's political agents in parliament set the target and though the SARB enjoys instrument independence in the pursuit of those targets, the MPC (and more specifically the government) is held accountable to the political agents and to the public for setting monetary policy. This judgement is confirmed by collecting the separate scores in tables 8.3, 8.4 and 8.5 to give the total score for the SARB on the accountability index of de Haan et al. (1998) as is shown in table 8.6.

*Table 8.6* *Total Score on de Haan et al's test for accountability*

| SARB | Industrialised countries | | |
|---|---|---|---|
| | Mean | Median | Standard deviation |
| 6.5 | 5.625 | 5.5 | 2.45 |

From Table 8.6 it is clear the present institutional design of monetary policy in South Africa compares favourably with that of the central banks even in industrialised countries, despite the shortcomings mentioned above and in chapter 7.

This long argument, starting with the constitutional problem of independent central banks in a democracy, and progressing through the need for accountability of an instrument independent central bank, that pursues a transparent goal with significant openness, yields two results: first, an institutional design matching these requirements solves the democratic deficit and, second, policy designed in this way is credible and hence circumvents the problems of dynamic inconsistency discussed above (Blinder, 1997b; Fischer, 1995a). Further, this argument has also taken the wind from Stiglitz's criticism.

A credible monetary authority was defined in chapter 5 as one which the public had reason to believe will "do what it says". Only if the policy reaction function of the central bank has been clearly articulated and explained to the public can there be meaningful evaluation of whether the

Bank is "doing what it said it would". The potential accountability of an inflation forecast-target is precisely such that the central bank has a clear incentive to implement the contingent plan over time and to communicate openly to the public how the day-to-day implementation (the policy stance) is consistent with the contingent plan (Agénor, 2000b).

Inflation forecast targeting allows the establishment of credibility for monetary policy in two ways. First (as has been discussed in chapter 5) it leads to systematic behaviour by the policy makers which can be compared with the plan over time to see whether they "have done what they said they would". But design is never enough for credibility; track record is essential. A good track record of fighting inflation is even more important for the establishment of credibility though, and this requires accurate forecasting on average (Blinder, 1999). This means that the credibility of the central bank is continuously evaluated on two fronts, i.e. : the stance of policy is compared with rule and second the rule is evaluated on the basis of the average observed outcome (Taylor, 2000b).

This chapter started with reference to the religious support for the gold standard which derived from the credibility deficit of government controlled fiat money. This chapter has argued that inflation targeting (which requires goal dependence and instrument independence for the monetary authorities) not only solves the technical problems of credibility for monetary policy, but also untangles the democratic deficit of independent central banks.

## 8.4 THE PARADOX OF POWER AND INDEPENDENT CENTRAL BANKS

In South Africa, parliament can change the Reserve Bank Act through a simple majority (Wessels, 2002). Such a change could affect the substance of the SARB's independence, and hence introduces the paradox of power in the monetary policy regime domestically. This is most clearly evident in the ability of the Finance Minister to change the explicit target for monetary policy (as happened on the 29th of October 2002 when Minister Trevor Manuel raised the upper end of the targeting range). Such a change in the general targeting rule does not even require a change to the statutes of the Reserve Bank Act; in this way in-period politics re-enters monetary policy domestically through the Minister's control of the target.

The events of October 2002 mentioned in the previous paragraph demonstrates the practical relevance of an issue that McCallum (1995; 1996) has identified as a "fallacy of central bank independence", that is: the principal-agent (or contractarian) solution discussed above does not solve the time inconsistency problem, rather the problem is relocated from the central bank to the government. In McCallum's words:

> "...under the proposed arrangement the government would have to enforce the contract – for instance, by reducing the CB's budget when inflation is high – but the government has exactly the same incentive not to do so as the CB has to be inflationary in the usual analysis... if the absence of a precommitment technology is actually a severe problem, then it must apply to a consolidated entity consisting of the CB and the government together. Just as it would to an entirely independent CB. If precommitment technology does not exist, then it does not exist and no arrangement can entirely escape that fact" (McCallum, 1996).

What McCallum calls a fallacy of independent central banking is simply the occurrence of the paradox of power in the monetary policy. Chapter 2 described at length how the rule of law and the distinction between constitutional and in-period politics helps to untangle the paradox of power. Chapter 9 explores how to separate in-period from constitutional politics to solve the paradox of power and establish the rule of law with respect to an inflation targeting regime. The conclusion is different from and more optimistic than McCallum's; problems of precommitment can be resolved, at least in principle, and these solutions are jointly called the rule of law.

## Appendix 8.1 Updated Eijffinger-Schaling test for central bank independence

Table 8.7 shows the test used to rate the degree of central bank independence of the SARB using the "updated Eijffinger-Schaling" indicator (De Haan, et al., 1998). Evidently, the SARB enjoys a high degree of independence. The SARB's score is due to the present author.

*Table 8.7 The updated Eijffinger-Schaling indicator of central bank independence*

| Aspect | SARB score |
|---|---|
| 1. Is the Bank the sole final policy authority? | 2* |
| 2. Is there no government official (with or without voting power) on the Bank policy board? | 0 |
| 3. Are more than half of the policy board members appointments made independently of the government? | 1 |
| ***Total*** | **3+1 = 4**** |

* A bank with full responsibility for policy scores 2, while those who share responsibility with government scores 1

** Eijffinger and Schaling added 1 to the total score to scale the variable between 1 and 5.

Appendix 8.2 Accountability test of de Haan et al. (1998)

The following Table shows the test used to rate the accountability of the SARB using de Haan et al.'s (1998) test. The SARB's score is due to the present author.

*Table 8.8 The accountability test of de Haan, Amtenbrink and Eijffinger*

| Aspect | SARB score |
|---|---|
| *A. Ultimate objective of monetary policy* | |
| 1. Does the Central Bank law stipulate the objectives of monetary policy?* | 1 |
| 2. Is there a clear prioritisation of objectives? | 1 |
| 3. Are the objectives clearly defined?** | 0 |
| 4. Are the objectives quantified (in the law or based on document based on the law)? | 1 |
| *Subtotal* | *3* |
| *B. Transparency* | |
| 5. Must the Central Bank publish an inflation or monetary policy report of some kind, in addition to standard Central Bank bulletins/report? | 0.5 |
| 6. Are minutes of meetings of the governing board of the Central Bank made public within a reasonable time? | 0 |
| 7. Must the Central Bank explain publicly to which extent it has been able to reach its objectives? | 1 |
| *Subtotal* | *1.5* |
| *C. Final responsibility* | |
| 8. Is the Central Bank subject to monitoring by Parliament? | 1 |
| 9. Has the government (or Parliament) the right to give instructions? | 0 |
| 10. Is there some kind of review in the procedure to apply the override mechanism? | 0 |
| 11. Has the Central Bank possibility for an appeal in the case of an instruction? | 0 |
| 12. Can the Central law be changed by a simple majority in Parliament? | 1 |
| 13. Is past performance a ground for dismissal of a Central Bank governor? | 0 |
| *Subtotal* | *2* |
| ***Total*** | ***6.5*** |

* The inflation targeting regime has made concrete the interpretation of the Reserve Bank Act

** The problem highlighted in chapter 7 (calendar year average, hard edges and so on) compromise the target's clarity

*** Though the SARB publishes a semi-annual monetary policy review, this document need not be consistent with the MPC policy decision (see chapter 7)

# CHAPTER 9 INFLATION TARGETING AND THE RULE OF LAW

In the ten chapters of his tract on social improvement, and during the ten evenings of their exposition, the reformer Shigalyov undertook to explain why social reform – however benevolently conceived – is logically fated to follow the same route, that is: "...starting from unlimited freedom, I conclude with unlimited despotism" (Dostoevsky, 1994: 402). But Shigalyov was really digging in an older garden where Locke had first, and Montesquieu had most deeply, understood that democracy "...is salutary within limits and fatal in excess" (Acton, 1909 [1877]: 63). In Lord Acton's clever turn of phrase, democracy is "...the truest friend of freedom or its most unrelenting foe, according as it is mixed or pure..." (Acton, 1909 [1877]: 63). Collective agreement and collective power is needed to establish and preserve the freedom that is the *raison d'être* of democracy[483], but by that very fact the government becomes a potential (and sometimes an actual) enemy of liberty; this is the paradox of power.

A society with an independent, inflation targeting, central bank risks a democratic deficit in the monetary policy regime if central bankers cannot be held accountable for monetary management. The standard solution to the democratic deficit is the ingenious juxtaposition of instrument independence for the central bank with goal dependence on government. But there are two objections to this solution: firstly, some (notably McCallum) have argued that it merely hands control of monetary policy back to government. A second group (including Stiglitz) argues in the opposite direction, that the standard solution emasculates government at a most critical point, by removing the most powerful tool of macroeconomic policy from democratic control.

This chapter is an attempt to show that constitutional economics may yet provide an extension of the standard solution that disarms both lines of criticism at once. A second objective, and the final task of this dissertation, will be to provide a normative evaluation of inflation targeting using the Pareto-Wicksell criteria applicable to constitutional economics.

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[483] The first chapter mentioned that this necessary role for the collective agreement and the force to uphold that agreement was why Hayek (1960) preferred the term 'constituted liberty'.

## 9.1 INFLATION TARGETING AND THE PARADOX OF POWER

Two of the important results of this dissertation are that inflation targeting can provide an efficient monetary policy framework (chapters 5 and 7) and that inflation targeting is consistent with the standard solution to the democratic deficit of an independent central bank (chapter 8). However, no answer has yet been given to the pressing question of how to prevent an abuse of power by whomsoever has the ability to set the ultimate goal for monetary policy (the general targeting rule).

The conventional solution to the democratic deficit[484] begs the question of what limits to place on the authority of the person(s) or organisations that set the general targeting rule? The domestic version of this question is: what are the limits to the authority of the National Treasury (effectively the Minister of Finance) to change (or abandon) the specifications of the SARB's inflation targeting regime? With reference to chapter 2 we can say that the standard solution answers Popper's (1966a) first question "who should rule?" but begs his second question "how should we tame the rulers?"

These political economy speculations are of pressing importance in South Africa (as they are for other inflation targeting countries) where the Minister has already availed himself of his power to change the inflation target: On the 29th of October 2002 Finance Minister Trevor Manuel used the medium term budget policy statement to adjust the SARB's target range for forecasted inflation in 2004, by raising the upper edge of the range from 5% to 6% (for the annual average of CPIX inflation) (Manuel, 2002). Since the Minister's intervention this second question has assumed practical significance in addition to its theoretical importance.

A useful first step towards answering Popper's question is to recall the distinction - introduced in chapter 2 and following the seminal work of Buchanan and Tullock (1969) - between two levels of political activity: in-period politics and constitutional politics[485]. Whereas the latter refers to political decisions about the framework that will set the parameters for future social, economic

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[484] That is, grant instrument independence to a goal dependent central bank.

[485] Buchanan and Tullock (1969) used the more general term "post-constitutional exchange" instead of in-period politics. The reason lies in the wider scope of their *Calculus of Consent*, where they used the term not just to analyse what is normally associated with political exchange, but with all contracts (including those that trade in the market of government). In-period politics (as used here) refers to political exchange that occurs within a given constitutional framework.

and political exchange, the former refers to political decisions that take those constitutional parameters as given.

An example from public finance demonstrates the distinction: the adoption of a balanced budget rule would occur at the level of constitutional politics, whereas the allocation of government expenditure (given the balanced budget rule) is a matter for in-period politics. From society's perspective the political exchanges in the post-constitutional phase could yield positive, zero or negative-sum solutions, but it is a fundamentally conflicting model of politics where pressure groups try to gain economic advantage through legislation. In contrast, politics at the constitutional stage is fundamentally co-operative, as Buchanan argued:

> "As it operates and as we observe it to operate, ordinary [in-period] politics may remain conflictual, in the manner noted above, while participation in the inclusive political game that defines the rules for ordinary politics may embody positively valued prospects for all members of the polity. In other words, constitutional politics does lend itself to examination in a co-operative analytic framework, while ordinary politics continues to lend itself to analysis that employs conflict models of interaction." (Buchanan, 1999 [1989]: 386)

The difference between constitutional and in-period politics is one of perspective. There is certainly no presumption that constitutional politics only occurs at 'constitutional conventions'. Rather constitutional politics occurs throughout, and refers to all political activity involving the institutions of society. In other words, constitutional decisions are those political decisions that are expected to have a long legacy[486].

Voluntary exchange, be it of the usual kind involving goods and services, or more abstractly in the form of political exchange[487], satisfies the criterion of unanimity (by definition). What is

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[486] Acton observed how this perspective affects the degree of liberalism in the political process: the longer the term (and the greater the uncertainty of the eventual impact on a particular person) the more liberal the deliberations. In contrast, short run decisions can be deeply illiberal as everybody's self-interest is clear over the relevant horizon and can enter the decision unimpeded. Acton contrasted the illiberal proposals of the economists prior to the French revolution with the constitutional proposals derived from Montesquieu, and explained the contrast with reference to the contrasting horizons at which the groups operated. "The economists are outwardly and avowedly less liberal than Montesquieu," argued Acton, "...because they are incomparably more impressed of the evils of the time, and the need of immense and fundamental changes. They prepared to undo the work of absolutism by the hand of absolutism. They were not its opponents, but its advisers, and hoped to convert it by their advice." (Acton, 2000: 11)

[487] See Stigler (1971) for a model of politics based on post-constitutional exchange. Elsewhere, Stigler (1982 [1971]), traced this conception of politics to the *Wealth of Nations*. Stigler attributes an argument to Smith along the following lines: "Do men calculate in money with logic and purpose, but calculate in votes with confusion and romance? To ask such a question is surely to answer it. A merchant who calculated closely the proper destination of every cargo, the proper duties of every agent, the proper bank to negotiate each loan – such a merchant would calculate also the effects of every tariff, every tax and subsidy, every statute governing the employment of labour. Indeed no clear distinction can be drawn between commercial and political undertakings: the procuring of favourable legislation *is* a commercial undertaking" (Stigler, 1982 [1971]: 136-137, emphasis in the original).

more, the addition of a few assumptions about a competitive market structure, the absence of transaction costs, securely defined property rights and so on, leads to the sanguine result of the first fundamental theorem of welfare economics: that the decentralised allocation of resources in such an economy is Pareto efficient (Feldman, 1987). And the second fundamental theorem of welfare economics declares that government policy (using, for example, lump sum taxes) could be used to switch between almost any two Pareto optimal equilibriums (Feldman, 1987).

However, two problems undermine the enthusiasm for normative policy initiatives by government agents and their political masters (the citizens). Firstly, the third fundamental theorem of welfare economics proves that the requisite[488] post-constitutional welfare function, on which the normative analysis was to be built, does not exist in a non-dictatorial society (Feldman, 1987).

Second, the constitutional framework itself must satisfy criteria such as the unanimity principle. This realisation introduces an important paradox: the gains of specialisation and trade can only be realised against an institutional background that lowers transactions costs, but the power to maintain that institutional framework threatens the same framework, and the framework requires universal assent (Buchanan and Tullock, 1969). There is a normative and a positive problem in this paradox. The positive problem is the paradox of power, which undermines the credibility of the institutional framework (and is considered below).

The normative problem is how to achieve the unanimity required before the members of society would voluntarily accept the constraints of the institutional framework. Because of their conflicting interests the members of society cannot resolve this normative problem in the post-constitutional phase (that is, using in-period politics) while respecting normative principles such as unanimous consent (Graaff, 1957). However, chapter 2 explained how normative evaluation is possible in constitutional politics, using criteria such as Pareto-Wicksell optimality.

It is the relative longevity of constitutional decisions which creates the space for normative analysis, by forcing all members of society to step back from their immediate self-interest in their evaluation (at a higher level of abstraction) of the institutional alternatives. They are forced into

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[488] See chapter 2 for the conditions of the Arrow welfare function.

this more abstract evaluation since they cannot anticipate what their private interest will be in every situation that might arise in the expected (lengthy) duration of the institutional arrangement. This uncertainty - or veil of ignorance[489] - forces the participants to consider more general criteria such as 'fairness', 'equity' and efficiency' in the decision, as opposed to simply self-interest (Buchanan, 1999 [1976]). The ensuing institutional decisions could be described as a contractual or constitutional solution, and this solves the normative problem mentioned above.

But the positive problem, that is, how to establish the credibility of institutions, given that the power sufficient to maintain the institution is often sufficient to undermine the institution. For example, one of the central themes of this dissertation is the difficulty of preventing monetary authorities from mismanaging the money supply, once the state has assumed monopolistic control of the monetary system (as is the general case in modern economies). The positive problem is none other than the paradox of power.

As was argued in chapter 2, the liberal solution to the paradox of power is to create a commitment mechanism that will raise the credibility of formal institutions. These commitment mechanisms create countervailing institutions that raise the cost for government of undermining institutions, for example: the separation of powers in government, federalism and, hence, competition amongst different entities in government, and constitutionalism (Weimer, 1997). Considering commitment mechanisms for money, Buchanan (1989 [1962]: 147) as Simons (1936) before him, argued that only a "constitutional attitude"[490] could give credibility to the government's commitment to prudent monetary policy.

Again following chapter 2, the adoption of a "constitutional attitude" in the attempt to give credibility to the monetary system, is the same as committing to the "rule of law". On this argument it is to the rule of law that we must look for a solution to the positive problem of establishing a sound monetary policy framework, and more specifically, to untangle the political problems associated with inflation targeting that were mentioned in the introduction. Section 9.2 considers the extent to which inflation targeting meets the criteria of the rule of law, and hence solves the positive problem of institutional design mentioned above. This is followed in section

[489] The difference with Rawls's (1971) veil of ignorance is that Rawls argues normatively that we should decide constitutional issues as if behind a veil of ignorance, whereas Buchanan's claim is that we are forced into the abstraction by the irreducible uncertainty of contingent events caused by the longevity of institutions.

[490] For Buchanan (1989 [1962]) such a constitutional attitude means "people must agree on the basic rules that define the operation of a monetary system and then agree to abide by these rules as adopted."

9.3 by a consideration of the normative problem, that is: whether inflation targeting could result from the constitutional deliberations of a free society.

## 9.2 INFLATION TARGETING AND THE RULE OF LAW

The essential features of the rule of law explored in chapter 2 were: firstly, that there are clear limits to the power of government at all levels; secondly, the law must be known and certain (facilitating the forming of expectations); thirdly, the law must be general and equal; fourthly, there must be a clear separation between the legislative and the judiciary powers; fifthly, it is crucial to set legal limits to administrative discretion. This section will evaluate inflation targeting (in general and with reference to the present situation in South Africa) against these criteria[491].

Chapter 2 argued that the rule of law is a necessary requirement of the constitutional liberty implied by decentralised decision-making. At stake in this section is whether inflation targeting as a framework for monetary policy satisfies the above mentioned requirements set by the rule of law. Given the unfortunate mis-management of fiat money by central banks for much of the twentieth century it would be a significant recommendation if inflation targeting could achieve an effective and practical limit on the discretion of the monetary authorities.

### *9.2.1 Clear limits on the power of government*

The first requirement of the rule of law is for clear limits to the power of government at all levels. Limiting the power of the state is often achieved through the twin solutions of a constitution and the separation of powers (as argued in chapter 2). In a democracy, this solution reflects the recognition that the scope for in-period politics of even a democratically legitimate government is not infinite[492]. The "will of the people" – as Stiglitz (2003) called it – operates at different levels and with differing scope at the constitutional level and at the level of in-period politics.

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[491] Section 9.2 is an extension of du Plessis (2002c).

[492] "There is, therefore, no earthly authority worthy of respect or vested with so sacred a right," argued the early chronicler of American democracy, de Tocqueville, "...that I would wish to allow it unlimited action or unrestricted dominance" (de Tocqueville, 2003 [1840]: 294).

The second half of the standard solution to the democratic deficit is to hand the responsibility for setting the general targeting rule to government. With goal dependence the devil is in the detail though: it matters a great deal whether responsibility for the targeting rule is handed to government at the level of in-period or at the level of constitutional politics. In the case of in-period politics McCallum (1995) is correct to argue that the incentives for dynamic inconsistency (which were the very reason for central bank independence) get re-introduced through the government's post-constitutional power over the target.

In contrast, if democratic control over the target is restricted to the constitutional level then the relatively slow pace of constitutional reform provides the commitment mechanism that resolves the potential dynamic inconsistency for monetary policy. This argument does not require that the inflation target be written into the constitution as such, but that the clause of, say, the central bank law, where the target is defined receive some form of protection that prevents it from being overturned by a simple majority. Failing that, the target could, at a minimum, be written into the central bank act. Since legislation takes time to draft (or amend), this arrangement would do much to support the commitment of the government to its inflation target. Henry Simons argued along these lines when he wrote that though monetary policy rule cannot "...wisely be written into our fundamental law, it must provide the same sort of limitation and mandate as would a constitutional provision. As things stand now, there is almost nothing which a dominant party may not do or leave undone financially, without rebuke" (Simons, 1936: 25).

Monetary policy in Norway is an example of an inflation targeting regime where the explicit inflation target has been taken from the sphere of in-period politics and located in the Act of the Norges Bank (Gjedrem and Qvigstad, 2001). Though such protection is not as strong as a constitutional safeguard, it requires more than a decision by the Minister of Finance to change the inflation target in Norway. In South Africa, the present arrangements for protecting the SARB's inflation target from in-period politics are less auspicious, though. Finance Minister Trevor Manuel could, for example, change the target at the medium term budget review (as was mentioned above) without even having to introduce or amend legislation. This aspect of inflation targeting in South Africa is theoretically and practically inconsistent with the rule of law.

There is, however, one interpretation of the present situation which would render the South African situation consistent with the rule of law, that is to recognise it as a transitional period in

the process of disinflating towards the long run inflation target[493]. Even if the costs of inflation are non-linear and less severe below 5% per annum, these costs are still positive and there is little case for rejecting a disinflationary shift in the wake of a fortuitous shock. In the South African case the government may wish to wait until the economy had reached an appropriate long run inflation rate before fixing that target in the central bank act, which on an international comparison would seem to suggest a level of approximately 3% per annum (see table 5.6 where the average target for developed and developing countries ranges from 2.75% to 3% depending on whether the mean or median is taken to define the centrality parameter).

If the above is the correct interpretation, the Minister would require the freedom to adjust the target downwards in the wake of a fortuitous shock and Minister should not be impaired in such a case. The logic of this argument is specifically asymmetrical though, as a tool of disinflation cannot (by that fact) be used to legitimise the power to raise an inflation target. It follows that the present arrangement in South Africa remains inconsistent with the rule of law, even when allowing for disinflationary scope.

### *9.2.2 The law should be known and certain*

A second criterion is that the law be known and certain. In principle, a transparent inflation targeting framework, implemented by a competent and independent central bank, satisfies this requirement. This does not imply that monetary policy would have become mechanistic, but it does imply that the central bank has ceased to create independent surprises in the economy. At any point in time the domestic and international economy could cause a series of shocks, but the monetary authorities would respond in a predictable manner to these shocks, and in this way allow decision makers to use the monetary system to set their plans given a predictable monetary framework. Successful inflation targeting central banks, like that of New Zealand, have made remarkable progress in eliminating policy shocks from the economy (Brash, 1996).

Chapter 7 explored various ways in which the practice of inflation targeting could be made more transparent at the SARB. These measures would improve public understanding of the targeting rule and in that way lower uncertainty and volatility on the financial markets, and in the economy

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[493] Mahadeva and Sterne (2002: 622) argued that the process of disinflation renders more difficult the clear distinction between "target setting and instrument setting" that is implied by the rule of law.

more generally. None of the present shortcomings are fundamental though, and table 7.9 suggests some priorities and costs for corrective measures.

### *9.2.3 The law should be general and equal*

A third requirement of the rule of law is that the law be general and equal. There are generally two ways in which the monetary policy regime can fall short of the requirement of generality and equality: firstly, the interest rate ceiling and credit rationing that accompanies financial repression often leads to privileged treatment for the government. Since inflation targeting requires a level of sophistication in the financial sector that normally precludes financial repression (see chapter 7), the implementation of inflation targeting does not so much remove financial repression as that it provides evidence of its non-existence.

Secondly, inflation (especially hyperinflation) affects the population asymmetrically, and causes a redistribution of wealth. However, this distribution is essentially arbitrary (Keynes, 1924), though the poor are often affected most adversely (Easterly and Fischer, 2000; and Romer, C.D. and Romer, 1998). An inflationist monetary policy regime is, consequently, not consistent with the rule of law. In contrast, inflation targeting regimes typically have low single digit targets for the inflation rate, which reassures the population that monetary policy is trained on avoiding the arbitrary redistribution and uncertainty of high and variable inflation.

Though the SARB's present inflation target is moderately high on an international comparison of fully-fledged inflation targeting central banks (table 7.1), the problem is not extreme, and the prospects of even lower targets in the future are favourable. Bearing in mind the adverse costs of disinflation, the present target level seems responsible and non-discriminatory.

### *9.2.4 Separation of powers*

The discussion of limiting the power of government also touched on the separation of powers. An inflation targeting regime typically benefits from successful separation of powers between the monetary and fiscal authorities. But there are other dimensions of the power that also threaten the prudent conduct of monetary policy, for example, undue power for the executive members

of the MPC, or for the research staff of the central bank. Increased openness on the MPC divides the power of that committee and lowers the risk that a single (or a few dominant) member(s) capture the initiative for setting the stance of policy. Additionally, research teams under the direction of different MPC members would raise the level of critical debate at the MPC.

In South Africa the monetary and fiscal powers have effectively been divided (Wessels, 2002), with the notable exception of the Minister of Finance's in-period power of the targeting rule. Power at the MPC could also be divided more extensively as per the suggestions in chapter 7.

### *9.2.5 Legal limits to administrative discretion*

Finally, it is crucial to set legal limits to administrative discretion. Under a system of inflation targeting the central bank is typically given instrument independence to pursue the inflation target unimpeded, through the implementation of a specific targeting rule of its own construction. In this arrangement the MPC members become so many administrators implementing society's general targeting rule, with potentially vast administrative powers. Inflation targeting certainly limits the administrative discretion of the monetary authorities, as their discretionary decisions have to be consistent with the general targeting rule. The contingent plan becomes the yardstick for evaluating the decisions of the monetary authorities at every point in time (and over time) under this arrangement. It is by holding the independent central bank accountable for the pursuit of the general target that the public limits the administrative discretion by the central bank.

The existing arrangements in South Africa (described in chapter 8) match the description above to a great extent. Discretion at the SARB is limited by the inflation targeting rule, and the attendant requirement for accountability. The transparency of the decision-making procedure at the monetary policy committee is a second mechanism which limits the discretion of the committee. In practice, this transparency is achieved by publishing the minutes of MPC meetings, publishing the voting pattern of the committee members and so on. A further mechanism to limit the discretion of the monetary authorities is to appoint the members of the monetary policy committee independently and to hold them independently accountable for their decisions, most notably through the public scrutiny of their voting records. Given the

institutional arrangements described here, inflation targeting could be consistent with the final requirement of the rule of law for the monetary policy framework.

Whereas chapter 7 pointed to various shortcomings of the present inflation targeting regime in South Africa with respect to the openness and hence effective limits on administrative discretion, these shortcoming can be corrected by institutional reforms.

In summary, inflation targeting is potentially consistent with the rule of law. This section has, additionally, answered both Stiglitz's and McCallum's objections: Contra Stiglitz the conclusion is that inflation targeting at an independent central bank is consistent with the "will of the people", where the latter operates at the constitutional level. Contra McCallum the conclusion is that inflation targeting need not re-introduce dynamic inconsistency through the influence of in-period politics, when the definition of the general targeting rule is moved to the level of constitutional politics.

Section 9.1 mentioned the paradox of institutional design identified by Buchanan and Tullock (1969) with both positive and normative dimensions. The consistency of inflation targeting with the rule means that the positive dimension (the paradox of power) does not present a hurdle for the credible implementation of inflation targeting.

The present institutional design of inflation targeting in South Africa falls somewhat short of the exacting standards mentioned above. Chapter 7 has already discussed measures that could (potentially) improve the accountability of the SARB, and hence provide a more efficient check on the administrative discretion of the MPC, enhance the certainty and generality of the rule's application, and provide a more effective separation of powers (also on the MPC). Those recommendations are relevant in this context too. One important deficiency that had not been picked up before was the absence of a check to government's power over the general targeting rule. Table 9.1 is, consequently a one-line addition to table 7.9 and indicates the priority and cost of moving the targeting rule to the level of constitutional politics.

*Table 9.1 Recommendation for reform at the constitutional level*[494]

| No. | Policy reform | Priority | Cost | Responsible institutions |
|---|---|---|---|---|
| 16 | Safeguard the inflation target in the Reserve Bank Act or the Constitution | 1 | 3 | Parliament |

At this point, an answer has not yet been given on whether inflation targeting also untangles the normative dimension of Buchanan and Tullock's paradox, that is: whether society can ever come to an agreement to implement inflation targeting as framework for monetary policy. Section 9.3 uses the Pareto -Wicksell criterion to consider this question.

## 9.3 NORMATIVE EVALUATION OF INFLATION TARGETING

Chapter 2 introduced the Pareto-Wicksell criterion for evaluating the choice between institutions normatively. Since the social welfare function is either non-existent or practically impossible to conceptualise, as per Graaff's (1957) argument, the familiar Pareto criterion has to be applied at the institutional level where the 'constitutional attitude' of participants removes the debilitating effect of conflicting personal interests. Buchanan introduced the term Pareto-Wicksell criterion for this application of the Pareto criterion at the institutional level, and he defined it as:

> "Given any existing set of rules, changes in these rules are permissible to the extent that all members of the group agree. By permissible here, I mean only that the effective Pareto region is assumed to be limited by the extent of such unanimously approved changes" (Buchanan, 1999 [1962]: 217).

The application of this normative criterion to the South African case generates the following question: Could South Africans have agreed unanimously to the change from informal money growth targets (or eclectic inflation targeting) to fully fledged inflation targeting? An adequate answer to this question must enjoy the requisite unanimity behind the veil of ignorance. The relevant considerations are: firstly, whether the pursuit of low and stable inflation is against anybody's interest? Secondly, whether inflation targeting has output and employment

[494] Explanations for the judgement on priority and the cost of reform are provided in Appendix 9.1.

implications at odds with anybody's interest? And thirdly, whether inflation targeting is politically unacceptable in a democratic dispensation?

The answer to all three questions is negative. The South African economy is highly polarised, with first and third world economies in close proximity and with complex interaction. However, participants in neither stand to gain from inflation behind the veil of ignorance[495]. Indeed, inflation is likely to worsen the already skew distribution of wealth and income in this country, and harm the prospects for poverty alleviation as it debilitates growth (see chapter 1). Further, flexible inflation targeting allows the SARB to integrate concerns for output and employment fluctuations systematically in the deliberations of monetary policy. The increased economic stability promised by inflation targeting (and on which the SARB has already partially delivered, see chapter 7) is against nobody's interest behind the veil of ignorance. Finally, at the abstract level, a democratic society will only yield power to technocrats that can be held accountable, as is the case with the instrument independent, but goal dependent central bank in inflation targeting. It is not against any South African's political interest to separate monetary and fiscal powers in this way, provided that the other criteria of the rule of law are satisfied.

A positive answer to the following question is therefore obtained: Could South Africans have agreed unanimously to the change from informal money growth targets (or eclectic inflation targeting) to fully fledged inflation targeting? This supports the normative case for inflation targeting.

## 9.4 CONCLUSION

Inflation targeting solves two important political problems in a decentralised economy. Separating goal and instrument independence at the central bank solves the first, the democratic deficit. However, this solution often leaves the ultimate goal of monetary policy in the hands of the ruling party, and this raises the second political problem at issue: the problem of limiting the scope of government in monetary policy. Delimiting the scope of government raises two problems though: the positive problem called the paradox of power in chapters 1 and 2, and the normative problem of how to evaluate rival institutions.

[495] There are always winners as well as losers during inflation (as was argued in chapter 1) but the associated redistribution is essentially arbitrary and there is consequently no basis (Rawlesian or otherwise) that inflationism could ever command universal assent behind the veil of ignorance.

This chapter argued that the rule of law provides a set of criteria for resolving the positive problem of limiting the scope of government. Inflation targeting is consistent with the rule of law, in principle and also in the South African case (though the accountability and the limit on the power of government requires attention, as indicated). Further, the chapter argued that the Pareto-Wicksell criterion could be used in the normative evaluation of adopting inflating targeting as a rule to limit the discretion of the monetary authorities. Applying this criterion to the South African case yielded unambiguous normative support for the adoption of inflation targeting as a framework for monetary policy.

The first paragraphs of Part III repeated Henry Simons's (1936) felicitous formulation of the challenge facing economists in the design of a monetary policy regime. He thought it a paradox: that we seek a design so rational, that we can hold to it irrationally heretofore onwards. The central claim of this dissertation is that inflation targeting provides a rational framework for the monetary policy regime, but one to which we can commit rationally.

Appendix 9.1 Explanation for the priority and expected costs of reform

*Table 9.2 Explaining the priority and expected costs of institutional reform*

| No. | Policy reform | Priority | Expected cost of reform |
|---|---|---|---|
| 16 | Safeguard the inflation target in the Reserve Bank Act or the Constitution. | This reform is urgent given the Minister of Finance's wide-ranging powers and his willingness to use them. The general targeting rule should be removed from in-period politics. | This reform is politically expensive and time consuming as it requires changes to legislation, or even the Constitution. The latter would be even more expensive politically. |

# CHAPTER 10 SUMMARY

Friederich Hayek was exaggerating when he claimed that "it would be much truer to say that money is one of the greatest instruments of freedom ever invented by man" (Hayek, 1944 [1971]: 67), but he was not exaggerating by much. One of the central themes of this dissertation has been the importance of money in facilitating decentralised decision making by lowering transaction costs and by contributing to the definition and maintenance of property rights. A second (and more melancholy theme) has been that government control of money has often been poor, and systematically so since the War. This leads to a third theme, the combined force of economic theory and central bank practice of the last quarter of a century or so has led to clearer limits to the discretionary power of government in the management of money. These limits are increasingly expressed as contingent rules containing explicit targets for monetary policy, for example an inflation target.

The objective of this thesis was to investigate how inflation targeting arises from and addresses the institutional background to the three themes mentioned above. A set of criteria from the New Institutional Economics literature is used to evaluate the extent to which inflation targeting captures the lessons from the three themes mentioned above. The practical importance of the thesis is in the application of this institutional evaluation to the inflation targeting regime of recent vintage in South Africa, which leads to a number of policy recommendations.

Part I consists of three chapters of which the first two are mainly abstract and concerned with the theory of the New Institutional Economics. The third chapter has a historical character and considers the history of and recent trends in monetary policy. The second part of the thesis starts with a theoretical consideration of monetary policy rules in chapter 4, and is followed by a discussion of one such rule, inflation targeting, in chapter 5. This discussion starts with the theory of inflation targeting, but proceeds to details of actual inflation targeting central banks, with special reference the SARB. Chapter 6 follows with a literature review of the empirical record of the first decade of inflation targeting. The seventh chapter is the core of the thesis and provides the institutional evaluation of inflation targeting. This evaluation is applied to the present targeting regime in South Africa, and leads to recommended policy reforms.

In part 3 the focus of the thesis turns to certain political considerations that arise from the independence of the central bank that is becoming increasingly widespread internationally,

especially with inflation targeting central banks. Chapter 8 concerns the issue of central bank independence and is followed by an application of constitutional economics to inflation targeting in chapter 9. The following few paragraphs describe the main themes and results from these chapters.

## 10. 1 PART I THE INSTITUTIONS OF MONETARY POLICY

Chapter 1 provides a theoretical introduction to the New Institutional Economics and its analysis of transactions costs in a decentralised economy, like that of South Africa. It is the price mechanism that solves the information problem and facilitates social order in a decentralised system. However, the price system can only play this role when the benefits of trade exceed the costs of trade, and that requires a host of institutions (both formal and informal) that lower transactions costs in the economy.

New Institutional Economics analyses this institutional background in terms of the "...set of constraints on behaviour in the form of rules and regulations; a set of procedures to detect deviations from the rules and regulations; and finally, a set of moral, ethical behavioural norms which define the contours that constrain the way in which the rules and regulations are specified and enforcement is carried out..." (North, 1984: 7-8). Following this tradition, the monetary policy regime is defined as the formal and informal limits on the ability of the monetary authorities to affect macroeconomic aggregates using their policy instruments. Accordingly, there are three aspects to a monetary policy regime: an objective for the policy, a strategy for achieving the objective and an institutional structure to support the pursuit of that objective. Whereas chapters 4 and 5 describe the goals and strategy of inflation targeting as an example of such a monetary policy regime, chapters 7, 8 and 9 consider the institutional structure to support the pursuit of that that objective.

The monetary policy regime is amongst the most important of these institutions, as money lowers the cost of transacting dramatically (and thereby facilitates economic growth and poverty alleviation), affects the distribution of income and, additionally, money plays an integral part in the specification and maintenance of property rights. With regard to the latter, chapter 1 derives a two-fold connection between property rights and money: firstly, money is itself one of the assets that require the protection of property rights, and secondly, money affects the efficiency

with which property rights are exchanged on the market. The monetary policy system, together with property rights and the other formal and informal institutions of the economy jointly form an institutional matrix, that is, the background against which specialisation and trade can take place in a decentralised system.

Though there are no institutional blue-prints for an economy, efficient institutions do share common characteristics and five of these were identified in chapter one as those which will be used to evaluate inflation targeting as a monetary policy system. Accordingly the five characteristics of efficient institutions are: their success in bringing stability and predictability in social interaction; secondly, cost efficiency; thirdly, incentive compatibility; fourthly, openness; and, finally, overall coherence of the institutional matrix.

Chapter 1 concludes with the sobering realisation that a government with enough power to ensure the credibility of an institution over time has, by the same measure, the power to undermine that institution; this is called the paradox of power. This paradox emphasises the difference between two important questions that Karl Popper identified in political philosophy: firstly, the question "who should rule?" and, secondly, the question "how can we so organise political institutions that bad or incompetent rulers can be prevented from doing too much damage?"; the paradox of power points to the second of these questions. By implication, political economy considerations in policy analysis are not only concerned with the question of authority (Popper's first question) but also, and more so, with the question of the credibility of policy, that is the extent to which the power of rulers can be constrained.

In the liberal tradition that forms the intellectual framework for much of mainstream economics (and this dissertation) the conception of liberty is essentially negative, that is, it refers to a sphere of personal influence in a persons life where society has no right to interfere. Drawing the limits of this sphere is (logically) a separate question from deciding who the legitimate ruler of society is. But where the credibility of institutions (like property rights) is concerned, the question of the boundaries of personal influence or the question of the limits to government initiative is primary. Disagreement about economic policies are seldom about whether there should be planning or not – nobody holds to either *laissez faire* or communism in the extreme – rather the hard questions are about the extent of the state in each activity where the state is involved. For the case at hand, the issue is the extent to which the state should have control over the management of the money supply and the discretion it should be allowed in that regard.

The liberal view of society recognises two levels of political activity: the constitutional level (where formal rules are constructed) and the level of in-period politics (where ends are pursued, given the institutional framework); policy analysis is different at the two levels. Since this dissertation evaluates the monetary policy framework, it is mainly concerned with the constitutional level of politics and policy analysis. Not only is positive policy evaluation possible at the constitutional level (using the criteria for efficient institutions mapped out in chapter 1) but normative analysis is possible, too, using the Pareto-Wicksell criterion.

The rule of law is a central part of the political discussion at the constitutional level, with the central concept being that of a set of rules (the law) that are abstract (general and impersonal), proscriptive, known and non-discriminatory. This rule of law has long been central to the liberal conception of decentralised decision making, and it determines the solution that a particular society has devised for the paradox of power.

Chapter 2 derives five characteristic features for rules in a decentralised system to ensure that the rule of law is upheld and that the paradox of power is untangled. These requirements are: firstly, clear limits to the power of government at all levels; secondly, the law should be known and certain; thirdly, the law should be general and equal; fourthly, separation of powers; fifthly, legal limits to administrative discretion. This also applied these criteria to the monetary policy regime in the abstract.

Chapter 3 provides a history of monetary management since the gold standard, an intellectual history of monetary theory over the same period and a sketch of four recent trends in central banking. A central theme of this thesis has been that democratic political control of monetary policy rarely achieves the judicious balance of present economic concerns with the long run benefits of low inflation. Nor is this the result of incompetence or malice. The problem is more basic and is due to the contrasting effects of expansionary monetary policy in the short and long run, which undermines the ability of a political power that faces regular elections (at fairly short horizons) to commit credibly to the prudent management of a national currency. The dynamic-inconsistency behind this problem of credible commitment by a monetary authority is a central theme of modern monetary theory. Chapter 3 described in detail how the disparity between the short and long run Phillips curve undermines the credibility of a commitment to low inflation by

a politically controlled central bank. Additionally, fiscal causes that undermine credible monetary policy were also discussed.

By the end of the twentieth century most developed countries (and an increasing number of developing countries) had returned to sound monetary management, with lower and more stable inflation than had been seen since the gold standard. Chapter 3 concludes with a discussion of four important trends in central banking over the last 25 years, they are: firstly, an increasing emphasis on credibility for monetary policy commitments; secondly, a more widespread use of explicit targets for monetary policy (for example, an inflation target); thirdly, a trend towards increasing independence from political interference (at least at the level of in-period politics) for the monetary authorities, and, finally the increasing use of feedback rules in the monetary policy process. This last observation leads to part II of the dissertation where chapter 4 provides a theoretical discussion of feedback rules.

## 10.2 PART II INFLATION TARGETING AS A FRAMEWORK FOR MONETARY POLICY

Chapter 4 provides a theoretical discussion of the modern understanding of rules in monetary policy. Prior to the seventies the rules versus discretion debate was often tied down in a dichotomy between those favouring an activist policy role for the monetary authorities in achieving the ends of monetary policy and a camp that favoured tying the hands of policy makers once and for all with a rule. Friedman's k-percent rule was the archetypal example of the latter. Though versions of this rule were implemented in many countries following the second oil shock, the requisite institutional reforms to support the rule rarely followed.

One of the strongest arguments against fixed parameter rules is that a policy maker with discretionary power can always implement them, should it seem like a beneficial strategy. Kydland and Prescott (1977) undermined this argument by demonstrating that such a commitment was precisely what the central bank could not do. This opened the door for Barro and Gordon (1983a; 1983b) to argue that rules were the general case, with discretion a special case which obtained when authorities lacked a commitment technology. Subsequently, the central aspect of a policy rule has come to be recognised as the commitment by policymakers to future behaviour, not the presumed permanence of parameters in the policy rule; this conception of policy rules is an application of the rule of law to economic policy.

The next important step in the rules versus discretion debate was to rid the case for rules from the assumption that rule-like policy should not respond to the state of the economy, which created space for potentially activist policy rules. The combination of this new direction in policy analysis with the theoretical literature on rational expectations resulted in what John Taylor called "new normative economics", which focuses on choosing the preferred policy rule from a set of alternatives, given the policy objectives.

Typically the alternative rules in such an analysis are contingent plans for adjusting the policy instruments in response to economic developments (the Taylor rule is a well known example). This implies an important distinction between two dimensions of economic policy analysis: firstly, the policy (the rule), and secondly, the stance of policy (the day to day implementation of the rule). Conceptualising rules as contingent plans also gives content to the concept of discretion, with the latter defined as the deviation by policymakers from their contingent plan in every period.

Two important dimensions of activist policy rules should be emphasised, they are: firstly, the systematic character of the policy rules and secondly, that the rule takes into account how decision makers throughout the economy will respond to the implementation of the rule. These two features allow the public to form rational expectations about the future conduct of policy makers. At this point new normative economics meets the new institutional economics: a rational expectations equilibrium in a forward looking monetary policy model means that the private sector expects the central bank to deliver on its policy claims, which is analogous to describing the monetary policy framework as an incentive compatible institution. This clears up a false dichotomy between policy rules and institutions. Like other institutions, monetary rules are efficient (or not) depending on whether they meet the criteria listed in the first chapter.

Policy rules have become increasingly widely used over the last twenty years, especially in monetary policy, and their adoption is often due to a combination of the following four factors: firstly, the desire for less short run political pressure on economic policy; secondly, the desire for greater transparency by policy makers; thirdly, the desire for greater accountability from policy makers; and, finally, the desire to remove public uncertainty over likely future policy decisions by policy makers.

The expanding theoretical literature and the increasing practical use of policy rules have also brought a specialised nomenclature for the concepts used in new normative economics. The distinction between instrument and target rules (with the more recent literature favouring the latter over the former) is amongst the important conceptual distinctions made in chapter 4. A targeting rule involves a layer of concepts: at the highest level the policy maker commits to a loss function, which includes both target variables and relative weights assigned to the various target variables. This loss function, the target variables and the target levels for these variables jointly form the policy maker's "general targeting rule." The "specific targeting rule", in turn, specifies how the policy instruments will be set in order to achieve the criterion of the loss function described by the general targeting rule. Chapter 4 discusses recent arguments to the effect that the general targeting rules should have a "timeless" perspective and that optimal specific targeting rules are normally time varying.

Two final theoretical considerations with regard to policy rules in chapter 4 are: firstly, an exploration of the conditions for optimal intermediate-targeting rules, and secondly, the very recent literature on the optimal "history dependence" in policy rules that offers a new explanation for the high degree of observed persistence in the setting of monetary policy instruments.

The final section of chapter 4 considered whether policy rules could be implemented in developing countries, too. This has become a more pressing issue since developing countries have increasingly abandoned fixed exchange rate regimes, which (in the presence of international capital flows) implies that these countries now have to assume the responsibility for monetary policy, domestically. Whereas there is little difference in principle between the argument for rules in developed and developing countries, the practical case in developing countries turns on whether or not the financial sector is sufficiently developed to facilitate a targeting rule of requisite stability and whether such rules should conclude (additionally) the exchange rate, to reflect the small and open nature of many emerging market economies.

Inflation targeting is an example of a modern feedback rule (or contingent plan) and an increasing number of countries have adopted it as the framework for their monetary policy since the early 1990s. Chapter 5 demonstrates the reasonableness of interpreting inflation targeting as a contingent plan after the pattern of chapter 4, and compares this with the SARB's own interpretation of its inflation target. The chapter also considers the implications of inflation

targeting for stabilisation policy as well some of the technical issues associated with targeting regimes such as the choice between a point target and a target range, the use of escape clauses and the relevant index to target.

Chapter 5 provides an interpretation of inflation forecast targeting in terms of the general description of targeting rules listed in chapter 4. The expected benefits of adopting inflation targeting as a framework for monetary policy are listed, and include: firstly, better co-ordination of the different aspects of macroeconomic policy, especially of fiscal and monetary policies; secondly, improved transparency for the monetary policy process; thirdly, improved accountability for the monetary authorities; fourthly, enhanced credibility for the Bank's policy commitment; fifthly, it provides an explicit forward-looking framework for monetary policy; sixthly, it prevents policymakers from attempting discretionary activism; and finally, in South Africa it relieves monetary policy from the problematic relationship between money aggregates and the aggregate price level.

Since a central bank's commitment to an inflation target is a question of degree, a set of characteristics has gradually come to be regarded as the minimum requirement for a full fledged inflation target, they are: firstly, a public announcement of an explicit target for forecasted inflation; secondly, the absence or rival nominal anchors; thirdly, government's recognition of the explicit target for monetary policy; fourthly, a forecasting strategy; fifthly, a communications strategy and sixthly, increased accountability for the monetary authorities.

There is little doubt that the SARB's targeting regime functions like inflation forecast targeting, with the Bank's inflation forecast acting as an intermediate target from which the MPC derives the decision to change or not to change the stance of policy at any point in time. However, the SARB has not always communicated this understanding of their own target efficiently: the chapter highlights numerous occasions where senior SARB officials have suggested that inflation targeting implies using an ultimate (as opposed to an intermediate) target. The danger of that interpretation is to focus the public's attention on the realised inflation rate as a guide to the stance of monetary policy, and away form the forecasted inflation rate which is, in fact, the guide for the SARB's policy stance. Additionally, this miscommunication undermines the distinction between the two dimensions of evaluating monetary policy, that is the forward looking evaluation of the stance of policy and the backward looking evaluation of the policy framework.

There is a concern, both domestically and internationally, that inflation targeting would focus the attention of monetary policymakers too narrowly on the pursuit of low and stable inflation, at the cost of economic growth and employment. Chapter 5 argues that, on the contrary, the inflation targeting provides precisely the flexibility for monetary authorities to consider the effect of monetary policy on output fluctuations. This claim is supported with a quantitative history which provided an historical juxtaposition of the stance of monetary policy relative to the phases of the South African business cycle. The historical picture that emerged from this account is one where monetary policy had seldom contributed to a dampening of the cycle, domestically. Indeed, policy was often pro-cyclical. It would therefore, not be correct to say that the adoption of inflation targeting represented an abandonment of previously anti-cyclical monetary policy in South Africa. Indeed, chapter 7 provides econometric evidence that inflation targeting has contributed to greater output stability in South Africa since 1994.

Three technical aspects of inflation targeting were also considered in chapter 5. Firstly, which price index should be the focus of the inflation target? In this matter this dissertation supports the use of a broad price index, but one that excludes the direct impact of monetary policy (for example the CPIX index currently used by the SARB). Secondly, whether the target should be specified in terms of a target range or a point target? In contrast with the SARB's use of a target range this dissertation argues for the implementation of a point target with a tolerance range. Finally, the dissertation argues that an escape clause is not required to support a well-defined inflation target, if the accompanying communications strategy is sufficiently detailed and forward-looking.

Chapter 5 concludes with a summary of the features of the policy regimes at 18 inflation targeting central banks, and includes information about the level of their targets, the width of target ranges and so on. Amongst the more interesting observations from this summary is that developing countries do not tend to have much higher target levels for inflation (if at all), but that the target range is (typically) wider in these economies, reflecting relatively greater uncertainty about the monetary policy transmission mechanism and the relatively greater impact of international disturbances on the price levels of these economies.

At the end of the first decade of inflation targeting economists have begun the econometric task of comparing the facts of experience with the promises of theory. Chapter 6 provides a brief summary of the relevant literature on this topic, focussing on four of the most recent and

influential papers by Ball and Sheridan (2003), Neumann and von Hagen (2002), Landerretche, Corbo and Schmidt-Hebbel (2002) and Hu (2003). Two alternative evaluation strategies are also considered, that is: Cecchetti, Flores-Lagunes ands Krause's (2001) use of Taylor's (1979) disaggregation and a revealed preference argument.

To date, the historical evaluations of inflation targeting regimes have not converged on a consensus opinion about the practical experience with this regime. The common factor in the literature is the recognition that inflation targeting countries have improved their own inflation experience (in terms of both the level and variability of inflation), but since this occurred during a period of general disinflation internationally, it is unclear whether the success should be attributed to inflation targeting or to a third factor affecting the world economy.

Cecchetti et al.'s (2002) methodology yielded a more unambiguously favourable evaluation of the inflation targeting experience. With one exception (the UK) improved monetary policy accounted for more than half of the total improvement in macroeconomic performance (as measured) in their sample of inflation targeting countries. Finally, from a rational choice perspective it is profoundly instructive that no inflation targeting country has yet abandoned the regime. Arguing from revealed preference this adherence to inflation targeting provides *prim facie* evidence in support of the new policy framework.

Chapter 7 connects the theory of inflation targeting more closely with the actual implementation of inflation targeting by considering the institutions that constitute the new policy framework. The focus of the chapter is to evaluate the institutions of inflation targeting using the criteria for efficient institutions derived in chapter 1. This institutional evaluation is applied to the inflation targeting regime in South Africa and relevant policy proposals are derived to improve the efficiency of the regime domestically.

The first section of chapter 7 introduces a classification system for inflation targeting regimes suggested by Carare and Stone (2003) according to which the SARB is rated amongst the fully fledged inflation targeting central banks. The remaining categories in this nomenclature are: "eclectic inflation targeting" and "inflation targeting lite" regimes. South Africa's inflation record is ranked 14$^{th}$ of the 18 fully fledged inflation targeting counties on this classification, which is a backward looking evaluation of the credibility of the SARB's commitment to the pursuing low and stable inflation. As a forward looking measure Carare and Stone (2003) suggested the

sovereign credit rating, though it is perhaps an evaluation of the total macroeconomic policy package, rather than of monetary policy exclusively. On this measure the total macroeconomic policy package in South Africa is slightly less credible than the median for the fully fledged inflation targeting group.

In addition to the above-mentioned objective measures of the inflation target's credibility a subjective measure such as the BER's inflation expectations survey could also be used. On this measure the SARB's inflation is not yet fully credible either, though expectations have recently been converging on the target range at a horizon of 2 years. The three tests mentioned above variously suggested that the SARB's inflation target has a credibility deficit (though not a very large one). To locate the source of that deficit, a test for the comprehensiveness of the inflation targeting regime from Masson, Savastano and Sharma (1997) was implemented and reported on in chapter 7. The result was that the SARB's targeting regime received a score of 66% (relative to 100% for a comprehensive inflation targeting regime), with much of the deficit caused by inadequate transparency about the policy procedure at the SARB.

Chapter 7 then proceeds to an institutional evaluation of inflation targeting after a brief introduction to principal-agent models in monetary policy. This evaluation follows the criteria developed in chapter 1, and includes cross-references to the IMF's *Code of Good Practises on Transparency in Monetary and Financial Policies.* Firstly, inflation targeting is consistent with the criterion of stability and predictability on two levels: the general targeting rule for flexible inflation forecast targeting typically contains low inflation and output stability as the ultimate goals for monetary policy and the implementation of monetary policy under inflation targeting is explicitly designed to increase the transparency and predictability of monetary policy and by extension contributes to the stability of the economy. A number of channels are also discussed whereby transparency could affect the outcome of monetary policy.

Secondly, inflation targeting is an incentive compatible monetary policy framework, as can be shown by using the principal-agent model for monetary policy, given that the loss function (as shown in chapter 5) represents society's goals for monetary policy and that the policy is implemented with sufficient transparency. It is the latter which (enhanced by the clarity of an explicit target and the systematic behaviour implied by a policy rule) contributes much to the resolution of the principal-agent problem in monetary policy.

Thirdly, the requirement of openness for a monetary policy framework raises questions at two levels. One level is that of the policy framework, which should be open to critical evaluation to reflect progress in our knowledge of monetary economics. Inflation targeting meets this requirement as long as the targeting rules are designed with the "timeless perspective" highlighted in chapter 4. The second level of openness refers to openness at the level of policy implementation. At this second level particular attention has to be given to ensure that the MPC operates in a critical and competitive environment (voting, publishing minutes and so on) and that the public and the political masters are able to monitor the conduct of the MPC.

Fourthly, the requirement of cost-efficiency of a monetary policy regime is measured against a society's loss function. Chapter 7 used the Taylor graph to distinguish between the economy's performance point and the optimal policy frontier (reflecting the optimal trade-off between inflation variability and output variability). In South Africa the economy has performed far better on the Taylor graph in the period since 1994 (when compared with the period 1986-1994), and the methodology of Cecchetti, Flores-Lagunes and Krause (2001) could be used to disaggregate the gain into that part due to a more favourable macroeconomic environment and a remaining part of the improvement which can be attributed to improved monetary policy. Chapter 7 reports on the research in du Plessis and Smit (2003) which investigated this issue and attributed 55% of the reduction in output-inflation variability since 1994 to improved monetary policy.

Finally, the requirement of overall coherence states that the monetary policy framework should be consistent with other dimensions of the overall policy and institutional mix. Indeed, one of the advantages of inflation targeting (as mentioned above) is that this framework clarifies to a great extent when, for example, fiscal policy is out of step with the inflation targeting regime. The present institutional matrix in South Africa is inconsistent with inflation targeting on at least 3 points: unindexed capital gains tax, administered prices and some aspects of labour legislation.

Each topic of the institutional evaluation in chapter 7 was complemented with an application to the South African case. From these discussions a set of reform proposals were derived for South Africa's inflation targeting regime; tables 10.1 and 10.2 list these reforms together with the subjective priority and cost implied by the institutional reform.

*Table 10.1 Summary of the recommendations for reform*

| No. | Policy reform | Priority | Cost | Responsible institutions |
|---|---|---|---|---|
| 1 | Implement a defined target horizon | 1 | 1 | National Treasury |
| 2 | Clarify the communication of the policy rule | 1 | 1 | SARB |
| 3 | Match monetary policy statement with policy rule | 1 | 1 | SARB |
| 4 | Distinguish forward and backward looking dimensions of IT in communications | 1 | 1 | SARB |
| 5 | Keep SARB wage settlements consistent with the target | 1 | 1 | SARB |
| 6 | Publish detailed conditional forecasts | 1 | 2 | SARB |
| 7 | Solve administered prices problem | 1 | 3 | National Treasury<br>Department of public works<br>Local governments<br>Municipalities |
| 8 | Reform labour legislation | 1 | 3 | Parliament |
| 9 | Safeguard the inflation target in the Reserve Bank Act or the Constitution | 1 | 3 | Parliament |
| 10 | Substitute a point with tolerance range for the target range | 2 | 1 | National Treasury |
| 11 | Publish (unattributed) minutes of MPC meetings | 2 | 1 | SARB |
| 12 | Publish at least a "core" forecasting model | 2 | 2 | SARB |

| No. | Policy reform | Priority | Cost | Responsible institutions |
|---|---|---|---|---|
| 13 | Index capital gains tax | 2 | 2 | National Treasury |
| 14 | Publish voting record of MPC members | 2 | 3 | Parliament<br>SARB |
| 15 | Appoint non-executive members to the MPC | 3 | 3 | SARB |
| 16 | Develop independent research teams under direction of various MPC members | 3 | 3 | SARB |

*Table 10.2* *Summary of the priorities and cost of reform*

| | | Priority | | |
|---|---|---|---|---|
| | | Low | Medium | High |
| Cost | Low | | 10. Substitute point for target range<br>11. Publish MPC minutes | 1. Defined target<br>2. Clarify rule<br>3. Match *policy statement* and rule<br>4. Forward and backward dimensions<br>5. SARB wage settlements |
| | Medium | | 12. Publish "core" model<br>13. Index capital gains | 6. Publish detailed forecasts |
| | High | 15. Non-exec MPC members<br>16. Independent research teams | 14. Publish MPC votes | 7. Administered prices<br>8. Labour legislation<br>9. Remove target from in-period politics |

## 10.3 PART III THE POLITICAL ECONOMY OF INFLATION TARGETING

Part III of the dissertation is concerned with matching inflation targeting to a democratic political system without re-introducing the problems of democratic money which had led to inflation targeting in the first place. To that end chapter 8 considers the issue of central bank independence as a solution to the pressing problems of fiscal dominance and the various inflation biases identified in chapter 3.

Chapter 8 starts with a brief review of the empirical literature on the effectiveness of central bank independence as a part of an efficient monetary policy framework. In summary: there is widespread consensus that central bank independence is associated with lower and more stable inflation with no output cost (though the latter part of the consensus is weaker than the former). The chapter then proceeds to rate the SARB's independence using two different indices, both of which indicate that the SARB enjoys a high degree of independence. This clears up a minor point of contention in the literature: whereas institutional knowledge of the SARB usually suggests a high degree of independence for the SARB, the empirical literature often ranks the SARB with a much lower degree of independence. The reasons for this disagreement are explored and resolved in chapter 8.

The "democratic deficit" of an independent central bank refers to the problem of handing control of a powerful policy instrument to a group of unelected technocrats at the central bank. The standard solution to the democratic deficit requires a distinction between two levels of central bank independence: goal independence occurs when the monetary authorities can choose their own general targeting rule, while instrument independence occurs when the monetary authorities can pursue the given goals, without interference, using the instruments of monetary policy.

There is widespread consensus that a goal dependent, but instrument independent central bank solves the democratic deficit, as along as the central bank is held effectively accountable to parliament and (by extension to) the citizens. Chapter 8 uses a series of tests to evaluate the SARB's accountability along three dimensions: ultimate objectives, transparency and ultimate responsibility. This section concludes by noting that the existing institutional design of inflation targeting in South Africa solves the democratic deficit to a large extent. The population's political agents set the target for monetary policy, and though the SARB enjoys instrument independence

in the pursuit of those targets, the MPC is held accountable to the political agents and to the public for the stance of monetary policy.

However, the standard solution to the democratic deficit risks re-introducing political control over monetary policy through the power of politicians to set the general targeting rule. This is not just a theoretical possibility in South Africa where the Minister of Finance has already once (on 29 October 2002) changed the target range. Chapter 9 argues that this problem is an instance of the paradox of power in the sphere of monetary policy. And the chapter proposes a solution to the problem drawing on the criteria for the rule of law and the principles of constitutional economics discussed in chapter 2.

Chapter 9 evaluates an inflation targeting regime against the criteria of the rule of law derived in chapter 2 (with a South African application). The first criterion of the rule of law was to place clear limits on the power of governments at all levels. Limiting the power of the state is often achieved through the twin solutions of a constitution and the separation of powers. In a democracy, this solution reflects the comprehension that the scope for in-period politics of even a democratically legitimate government is not infinite. As has happened in South Africa, goal dependence in monetary policy risks, however, locating control of the general targeting rule at the level of in-period politics. All the dynamic inconsistencies and inflation biases of chapter 3 are hereby potentially re-introduced into the monetary policy framework.

However, if democratic control over the target is restricted to the constitutional level then the relatively slow pace of constitutional politics provides the commitment mechanism that resolves the potential dynamic inconsistency of monetary policy. This argument does not require constitutional protection for the targeting regime as such, as long as protection in, say, the Reserve Bank Act removes the goals of monetary policy from the level of in-period politics. Presently, this aspect of inflation targeting in South Africa is theoretically and practically inconsistent with the rule of law.

Secondly, the rule of law requires that the law should be known and certain. In monetary policy this translates into a requirement for systematic and transparent policy. Chapter 7 (and table 10.1 above) explored various ways in which the SARB's targeting regime could be improved on this account. When successfully implemented monetary policy consistent with the rule of law will cease to be an independent source of news in the economy. Thirdly, the law should be general

and equal, a requirement which is easily satisfied by inflation targeting in the abstract and by the present targeting regime in South Africa.

Fourthly, the rule of law requires an effective separation of powers. In South Africa (as is typical for inflation targeting countries) fiscal and monetary powers have been effectively divided. However, power on the MPC must also be divided in the interest of critical discussion and rational policy making and the present institutional design in South Africa is somewhat lacking on this measure (see chapter 7).

Finally, the rule of law requires legal limits to the discretion of the technocrats at the central bank. Inflation targeting satisfies this criterion since the contingent plan becomes the yardstick against which the public and parliament can evaluate the decisions of the monetary authorities at every point in time. This provides an effective limit on the independence of the MPC. The present institutional design in South Africa matches this description to a significant extent. Whereas chapter 7 pointed to various shortcomings of the present inflation targeting regime in South Africa (with respect to the openness and hence the effective limits on administrative discretion) these shortcomings can be corrected by institutional reforms (as suggested in table 10.1).

In summary, inflation targeting is potentially consistent with the rule of law. Additionally, this consideration of the rule of law has cleared up two important objections to inflation targeting by an independent central bank: firstly, inflation targeting at an independent central bank is consistent with the "will of the people", where the latter operates at the constitutional level. Secondly, inflation targeting does not re-introduce dynamic inconsistencies and inflation biases through the influence of in-period politics, as long as the definition of the general targeting rule is moved to the level of constitutional politics.

The final issue in this dissertation is the normative question: whether society can ever come to an agreement to implement inflation targeting as a framework for monetary policy? In the tradition of constitutional economics the Pareto-Wicksell criterion was used here to answer this question. Formally the question was: Could South Africans have agreed unanimously to the change from informal money growth targets (or eclectic inflation targeting) to fully fledged inflation targeting? An adequate answer to this question must enjoy the requisite unanimity behind the veil of ignorance. The relevant considerations are: firstly, whether the pursuit of low and stable inflation

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is against anybody's interest? Secondly, whether inflation targeting has output and employment implications at odds with anybody's interest? And thirdly, whether inflation targeting is politically unacceptable in a democratic dispensation? The answer to all these questions is negative, which adds normative support to the positive arguments for inflation targeting developed in the remainder of the dissertation.

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